

CIO

THE MAGAZINE FOR INFORMATION EXECUTIVES

APRIL 1, 1994

VOLUME SEVEN NUMBER TWELVE

SEVEN DOLLARS

COVER STORY

New-Age POS Systems

*Serving Customers
And Gathering Data
Through A Thousand
Points Of Sale*

AN INTERNATIONAL DATA GROUP PUBLICATION

ALSO INSIDE

**International
Markets:
Adventures
In West Africa**

**Au Bon Pain's
Mark Factor**



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INSIGHTS: PRICING TO PLEASE

Some CIOs are finding that running IS as a business within a business can be the key to satisfying users and stockholders alike.

By Eugene G. Lukac

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FIRST PERSON: THE BROUTERS OF ADDISON COUNTY

A man, a woman, a book, a router, a bologna sandwich, a memory....

By Tripp Strange

ELECTRONIC DATA INTERCHANGE

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STATE OF THE ART: THE EDI SUPERHIGHWAY

The standards issues are largely laid to rest, and the business applications show more pizzazz and sophistication. But the key to EDI's ultimate fruition may lie in the astonishing growth of the Internet.

By John Edwards



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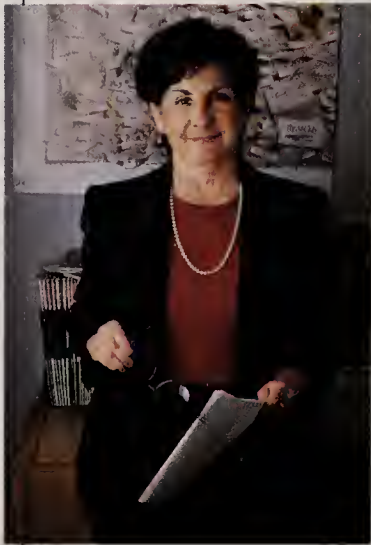
- Calendar of events
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Getting the
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Looking at this issue of *CIO*, the phrase "what is the world coming to" springs to mind. The successful use of IT in such endeavors as political campaigns, fast-food operations, retail banking and telecommunications plays a key role in making us feel that the future is now.

Landon Curt Noll, a recently elected city councilman in Sunnyvale, Calif., ran part of his campaign on the Internet (please see "The Virtual Campaign," beginning on Page 66, by Senior Editor Leigh Buchanan). People using the Internet requested information on Noll's position on several issues. Impressed with his responses, many voters signed up to work on his campaign. Noll estimates he reached about 50,000 people and

obtained a third of his campaign staff through the net.

Personal banking systems and fast-food operations use point-of-sale technology to provide better service to customers. In "The Point of Most Return," on Page 46, Contributing Writer Peter Cassidy reports that Huntington National Bank of Columbus, Ohio, provides customers with sophisticated self-service banking options such as touch-screen terminals and videoconferencing. At KFC, counter personnel are prompted through order routines to make sure customers always get what they want. KFC is also looking to develop a frequent-purchaser program that taps into customer buying habits, which will help it better tailor its promotions.

The convergence of all types of communications in a single transport medium is changing the telecommunications marketplace. In "E Pluribus Unum," beginning on Page 58, Contributing Writer Mickey Williamson examines the recent gyrations in this arena. Although it is really too early to tell what the outcome of all this activity will be, new options for CIOs will abound.

The importance of information management isn't confined to leading-edge U.S.-based companies. Senior Editor Thomas Kiely spent two weeks late last year in Gabon. He followed the politics that embroiled a group of officials working with a U.S. systems integrator to create a sophisticated port system for this emerging West African nation. Kiely reports on the drama and intrigue surrounding this important project in "Into Africa," beginning on Page 34.

Finally, our mythical CIO, Tripp Strange, pays his annual April 1 visit on Page 30. This year, Tripp recounts a rousing adventure in Addison County, Minnesota, with router saleswoman Roberta Kincaid.

Marcia Blumenthal



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Subscriber Services (800) 788-4605, FAX (508) 872-0618.
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Just 10 years ago people used automated teller machines (ATMs) somewhat skeptically for simple bank transactions. Today, we can't imagine life without them. Many industries, especially banking, food service and retail, have fervently embraced point-of-sale technologies to help improve all aspects of the business, from marketing to inventory control. But if you think universal product code (UPC) scanning and ATMs are the be-all and end-all in this area, think again.

The point-of-sale technology revolution is about to explode. The sophisticated products entering the market will make ATMs look like child's play. "The Point of Most

Return" (beginning on Page 46) documents some of the newest applications being introduced at banks, restaurants and retail shops. Sure they're the cutting edge now; but in a few years they'll be the norm. And the reason is clear: Businesses have to get closer to the customer, and there's no better place to collect information than right at the source.

The new AT&T Global Information Solutions (created when AT&T purchased NCR) is one company that's poised to be a major player for providing point-of-sale technology to a diverse list of organizations. Companies that manufacture data-collection devices, such as scanning equipment and handheld computers, and that have proven their effectiveness in inventory management are also well positioned.

Smart companies know that data collected at the point of sale is by far the most valuable for analyzing the dynamics of the marketplace. That being the case, the technology companies that foresee the potential of the point of sale will certainly flourish.

Walter L. Woz

P.S. Registration for the October 1994 Perspectives conference is underway. Peter Drucker will act as "master of ceremonies" as we explore "IT Economics: Business Value & Profit Maximization." The conference will take place Oct. 23-26 at La Paloma in Tucson, Ariz. Please call our toll-free conference hot line at 800 366-0246.

Coming In CIO

Strategic Partners

The dizzying pace of change affecting both business and technology has altered the role that advanced technology groups play within their organizations. These groups are coming down from their ivory towers and entering into strategic relationships with business units. Now, they function more like internal technology consultants.

Preparing for Reform

For CIOs in health-care organizations, the current industry upheaval is a double-edged scalpel. While they have the opportunity to have a greater impact on the enterprise, they also must labor under the threat of greater disaster: If the technology fails, the entire business fails. *CIO* talks to health-care IS executives to learn what they're doing to prepare for health-care reform.

No More Paper

The paperless office is back. But today, the idea has less to do with cutting the costs of maintaining mounds of paperwork than it does with improving effectiveness: Compared with bits of data, paper is too slow, too fragile and too prone to be misplaced. At the same time, people don't want to give up the "look and feel" of paper documents, nor the legal weight. The solution: document imaging systems that store and distribute digital clones of the paper they replace.



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EMPLOYMENT SERVICES

HIRING LINE

How to find work in the '90s: Step 1. Fire up the modem. Step 2. Find a job.

OK, it's not quite that simple—yet. But job hunters at all levels and in many fields are scanning nationwide help-wanted lists, posting resumes and networking tirelessly—without changing out of their bathrobes.

They're tapping into a growing network of employment-related databases, bulletin boards and online forums.

"It's a whole new way of marketing yourself to employers, expanding the defi-



nition of what a job search can be," says Gray Mattern, president of the National Resume Bank (NRB), a resume database company in St. Petersburg, Fla.

Initially, services were

aimed at college students and favored the computer industry. Today's focus is much wider. NRB's clients range from entry level to executive in industries as diverse as aerospace, real estate and retail.

The cyberspace job quest offers benefits for both job hunters and employers. Callers can dial up anytime, not just during business

hours. Nationwide databases alert both sides to opportunities they might otherwise miss. Key-word searches can pinpoint jobs or candidates by industry, title, location or other criteria. New

information can be added regularly; in some cases, several times daily. Sometimes, initial postings are anonymous, protecting confidentiality and helping prevent job discrimination. And finally, job hunting online can be cheaper than using headhunters, resume blitzes and other traditional techniques.

Approaches vary widely. Some companies, such as the NRB, make resumes available to employers; others target job seekers. Many local bulletin boards maintain help-wanted sections. And some professional groups list specialized openings: For instance, SpecialNet, run by GTE Educational Services in Irving, Texas, offers employment leads for school administrators, teach-



PREFERRED STOCK

Many information providers say they are committed to quality, but Reuters PLC has a system to back up its claim. The London-based news and financial-information company uses an expert system to identify errors in stock market data originating from financial exchanges

in the United Kingdom and Ireland. Errors are now detected in real-time, allowing corrections to be made much sooner. According to Exchange Data Manager Herbie Skeete, the system helps give Reuters an edge over the competition.

Previously, Reuters detected errors using a combination of software programs and analysts who scanned screens for inconsistent data. Errors were sometimes not discovered until the end of the day, when "snapshots" of the data were taken.

The current system, known as the Intelligent Quality Toolkit (IQT), built by PA Consulting Group in London, has been up and running since last year. Two components make up IQT: a database-management system from Sybase Inc. and KAP-

PA, an object-oriented application-development environment from IntelliCorp.

(The company built its own rule engine in KAPPA instead of using the expert system that came with the technology.) Financial data is fed into IQT and checked against rules set by market experts. The system automatically alerts an operator when an inconsistency is detected, and he or she makes corrections accordingly.

Because the IQT relies on object-oriented technology, rules can be modified easily to accommodate changing requirements posed either by Reuters or the financial exchanges. And when the issue of quality comes up, says Skeete, "we have a tangible system that we can point to as proof of our commitment." ■

A woman with dark hair, wearing a pink and white striped cardigan over a white collared shirt, is laughing heartily. She is holding a small, beige mobile phone to her mouth with her right hand. The background is dark and out of focus, suggesting an indoor setting.

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ers and support staff.

Some services cater to both sides of the employment equation. Major online services, such as CompuServe, Prodigy, Delphi and America On-Line, post both openings and resumes; job seekers may find indirect leads by networking in professional forums. Anyone with Internet access can join at least two employment conferences.

Many services are also forging alliances with newspaper classified sections. Information Kinetics, which operates the kiNexus database of 125,000 job listings, recently launched FasTrak, a system that allows candidates to respond electronically to newspaper help-

wanted ads. Job-seekers call the system, punch in personal identification numbers and enter codes listed in the ads; FasTrak instantly transmits their resumes to the companies indicated.

Some publications are experimenting with online classified-ad searches, too.

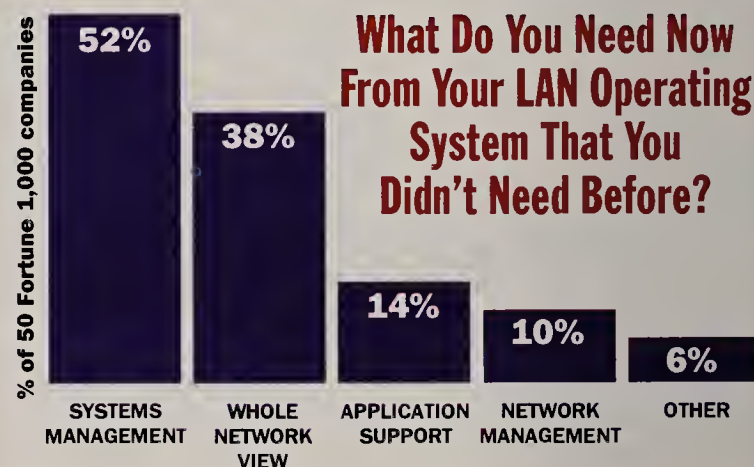
Who pays? That varies. Some services charge applicants to post resumes, which employers can view for free. Some bill companies for job ads but let applicants look at no charge. And some require all callers to pay for memberships, connect time or long-distance charges.

Information on specific job lines can be found in the *Gale Directory of On-line Databases*, a reference book

BON NOTES

Jim Manzi should be gratified: The results of a recent study show that companies are increasingly looking to Lotus Notes as a keystone of their reengineering efforts.

According to the survey, by Forrester Research Inc. of Cambridge, Mass., Notes users say the product lets them create new types of applications centered around communication, coordination and collaboration. The respondents consider these types of applications to be critical to reengineering both their business processes and their organizations.



"The bottom line is that all users should factor Notes, or products like it, into their long-term plans," says Heidi S. Dix, author of the report and analyst of Forrester's software strategy service. "And other software vendors must have a strategy for how their products fit with Notes, or they will be shut out of companies that have made big commitments to Notes."

In a separate report, Forrester predicts that Microsoft Corp.'s Windows NT Advanced Server will not make significant headway against Novell Inc.'s domination of the LAN operating-system market. Sixty-four percent of the Fortune 1,000 IS managers surveyed said that NetWare will not become obsolete at the hands of NT, which most view as an application-server operating system rather than the basis for a companywide network. "MIS knows they'll never make it to companywide client/server without a LAN operating system that sees the network as a single entity," says Paul Callahan of his report's findings. "And for most, the answer is NetWare." ■

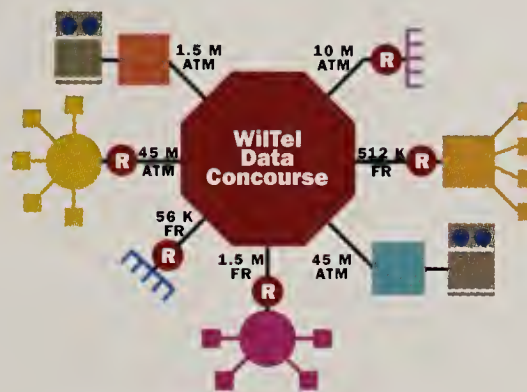
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Job hunters might also want to read *Electronic Job Search Revolution*, by Joyce Lain Kennedy and Thomas J. Morrow (Wiley), a guide to what's available. ■

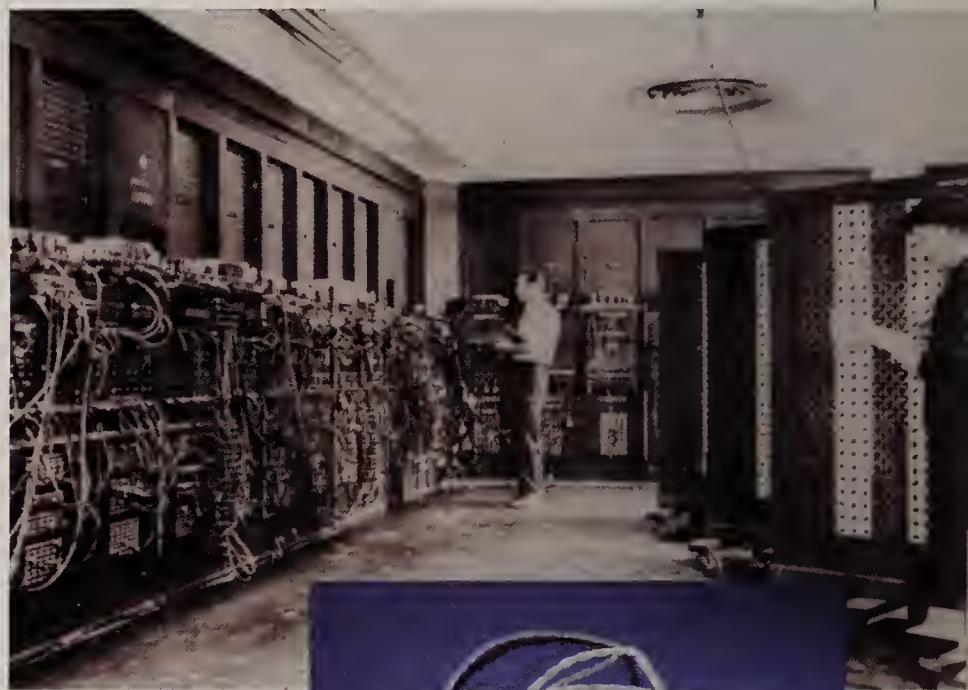
RECOMMENDED READING

THE RISE AND RISE OF I.T.

After decades of being ignored in favor of more-glamorous professions like boxing, ballet and archi-

tecture, IS executives finally have a coffee-table book of their own. *InfoCulture: The Smithsonian Book of Information Age Inventions* (Houghton Mifflin) was released too late for Christmas, but it's still a neat present for CIOs who care enough about their profession to want to know its history.

"American culture can best be interpreted and understood as an infoculture...where what we see, hear and think about is shaped to an ever-increasing extent by our information machines," explains author Steven Lubar, the Smithsonian's curator of engineering and industry. "[It is] a culture that values speed, exactness and continuous nov-



BLAST FROM THE PAST: the ENIAC computer, above, and a 1952 hearing aid, from *InfoCulture*.



elty but remains ambivalent about freedom versus control, creativity versus profitability, individualism versus organization."

Beginning with the earliest newspapers and other disseminations of words on paper, *InfoCulture* follows the technological history of communications up through high-definition television, parallel processing and cybernetics. The book offers perspective on how much has changed ("If it should ever turn out that the basic logics of a machine designed for the numerical solution of differential equations coincides with the logics of a machine intended to make bills for a department store, I would regard this as the most amazing coincidence I have ever encountered," wrote one Harvard scientist in 1956) and how much has stayed the same (the director of the Dudley Observatory in Albany, N.Y., was fired from his job in 1859 after spending \$5,000 on a new-fangled calculating machine

that was never used again after his departure).

InfoCulture is also a wealth of entertaining trivia. For example, Marconi installed an early wireless system for Queen Victoria so she could keep tabs on the Prince of Wales while he was off gallivanting aboard the royal yacht. And in 1978, when only 1 percent of stores were using bar-code technology, *Mad* magazine ran a giant bar code on its cover, with the message "Mad hopes this issue jams every computer in the country."

The richly illustrated volume, which is as much a reference work as it is entertainment, records both the social and scientific history of this, our information age. It should be of interest to all those in the information profession concerned with where they came from and—to a lesser extent—where they are bound. ■

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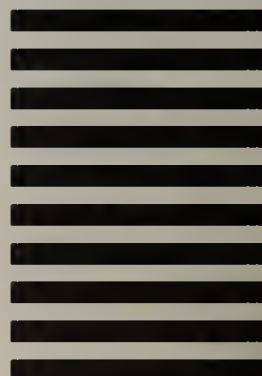
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4100 Bohannon Drive
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"Sybase And Oracle Lack The Clarity of Informix's Architecture. They're Going To Have To Go Back to Their Labs."

Peter Kastner, Aberdeen Group

Parallel Database Technology That's As Dynamic As Your Organization.

Recently, Informix Software introduced Dynamic Scalable Architecture™, a next-generation database architecture designed to take advantage of parallel processing. The result is a technological breakthrough in client/server database performance and scalability. Informix's Dynamic Scalable Architecture will run on the entire range of new, high-performance open systems, from uniprocessors to symmetric multiprocessors, loosely coupled clusters, and massively parallel machines.

John Morrell, International Data Corporation:

"The Informix Dynamic Scalable Architecture has the potential to vault Informix past its primary competitors for high-end database processing functionality."

David McGoveran, Alternative Technologies:

"The new Informix database server architecture will put the vendor ahead of competitors Oracle and Sybase in support of multiprocessing systems."

Rob Tholemeier, Meta Group:

"Informix may have the best scalable server technology today...I think people are mistaken in not taking the time to really look at Informix."

Gordon Kerr, VP, Information Systems, Hyatt Hotels and Resorts:

"What Informix has done with DSA is make it much easier for me to plan for the future. We're beginning to deploy symmetric multiprocessing hardware through our organization, and I know that if and when we determine we need to scale up to loosely coupled or MPP machines, our Informix applications will be able to make the move with us."

Michael Bloomberg, Bloomberg Financial Markets:

"Informix developed core internal parallelism in DSA, which is different than other types of add-on parallel database capabilities we've seen. Since the parallel processing features are internal, rather than external, we're expecting impressive performance gains. It's clear that Informix thought this technology through."

Find Out Why DSA™ is So Different.

Attend our free seminar series on parallel processing technology. Or send for independent reports from Aberdeen Group and IDC. **Just fill out the attached card and drop it in the mail—or give us a call at 1-800-688-IFMX, ext. 18—and we'll send you more information.**



TRENDLINES

A DOWN-TO-EARTH APPLICATION

The information superhighway ain't just for "hitchhikers." It's also the route for real-world applications. And to prove it, the National Information Infrastructure Testbed (NIIT), a coalition of corporations, universities and government agencies, has fashioned an example of such an application: the multimedia Earth Data System, which assesses the impact on the environment of deforestation and ocean pollution.

The application links nine sites nationwide using a high-speed network based on asynchronous transfer mode, fiber distributed data interface and frame relay.

Using that network, or the Internet, geographically dispersed users can access an information bank of satellite images, weather statistics, coastline and river data, salinity levels and fishing yields. Currently a tool for scientists, the application should also interest gas-exploration and forest-product firms, the coalition hopes.

The Earth Data System is the first application for NIIT, which was formed last September. The next, due later this year, will be health-care-related. NIIT members include AT&T, Digital Equipment Corp., Hewlett-Packard Co., Novell Inc., Sprint International and Sun Microsystems Computer Corp. Call 800 299-9973. ■

CAPITOL CONNECTIONS

Last year, Landon Curt Noll won a seat on the Sunnyvale, Calif., City Council in part by campaigning over the Internet (see "The Virtual

Campaign," Page 66). While Noll's online strategy is considered innovative, electronic networks are well-trodden ground for all types of political and government activity.

Political discussion forums and government-document

WHAT-IF EXERCISES

You've probably heard it from your network manager: "T1 lines may be too slow for our future needs, but T3 is overkill. Will ISDN-B packet switching be more cost-effective than SMDS Megaconnect?" Wouldn't it be easier to respond intelligently to such babble if somebody sat down and tested and contrasted this stuff at your actual sites?

GTE Corp. is offering this high-tech, what-if exercise through eight demonstration centers where live, site-customizable public networks put various point-to-point, circuit and packet-switched technologies through their paces. The centers are part of GTE's recently announced World



MASTER MONITOR: Another aspect of GTE's World Class Network program is this Irving, Texas operations center where staff monitor the company's network facilities around the clock.

Class Network, a new master plan for delivering its data and voice products to business customers. To justify the world-class spin, GTE says it has upgraded its fiber-optics and switching infrastructure; added voice, video and data services; lowered pricing; and improved customer service via the demo centers.

After installing more than 50 fiber-optic rings, GTE has achieved the critical mass necessary for self-healing switching, in which service will be automatically rerouted if a customer's own route experiences trouble. Prices have been effectively lowered by a new flat-rate tariff called MetroLAN that is not dependent on transmission distance. Instead, businesses buy high-speed bundled services that enable economies of scale.

GTE wants to boost its public-network presence in the business sector. It currently has 50,000 large business clients. ■

WORDPERFECT

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Increases your productivity: run more than one program at a time with greater reliability.

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Saves you money: no need to buy various utilities to improve Windows performance.

TRENDLINES

libraries abound on the Internet and on many commercial networks that provide access to it. And, many of these companies offer services that facilitate communication with the White House and Congress. GENie Services' White House RT, for example, lets subscribers download speeches and press releases, peek at how the president's staff organizes his day and send electronic letters directly to the White House. Using CompuServe's "Congressgrams," subscribers type messages to their representatives into the system; a company in New Jersey prints and sends hard copies. In addition, President Clinton has agreed to personally answer online

10 questions submitted by CompuServe members. Other services offer political outlets as well.

While activity has flourished since Clinton took office, things were already heating up during the 1992 elections. At that time, CompuServe reserved an area on its network where all three candidates could post messages and campaign material. "The Clinton people were the most active, and we had a little bit from the Bush campaign as well," says Debra Young, corporate communications specialist for CompuServe. "The Perot people weren't really involved; they were very hard to reach, in fact. We thought that was pretty ironic." ■

EVENTS

Virtual Reality Entertainment Forum 1994

*Grand Hyatt Hotel, New York
April 5-7
SIG Advanced Applications
212 717-1318*

This conference and exhibition will explore virtual-reality applications and developments in the fields of entertainment, advertising and marketing. Hands-on exhibits will give attendees the opportunity to experience the newest technologies in this area. Registration: \$595

1994 SIM Institutional Member Conference: Creating the New Synthesis: Integrating Quality, Technology, People and Productivity

*Marriott Sawgrass Resort,
Ponte Vedra, Fla.
April 19-22
Society for Information
Management (SIM)
312 644-6610*

Making key resources more effective and profitable through a balance of integrated change is the focus of this year's conference. Top IT professionals will discuss their organizational concerns, changes in the industry, technology and career strategies. Registration: \$1,195 for members

Reengineering Employee Benefits: Reshaping Process Through Technology

*Le Meridien Hotel, New
Orleans
April 20 & 21
International Quality &
Productivity Center
800 882-8684*

This conference will address how to save time

and money in the administration of employee-benefits plans through automation, outsourcing and other strategies. Three hands-on workshops will provide examples. Registration: \$1,595 to \$1,795

Computer, Audit, Control and Security (CACS) Conference

*Hyatt Regency Dallas
April 24-29
EDP Auditors Association Inc.
708 253-1545, Ext. 403*

Ten concurrent sessions will cover topics including telecommunications, systems software, and security and management issues. Speakers from major corporations, universities and government will present technical and management sessions. Registration: \$1,095 to \$1,195

Decision Support and Executive Information Systems: Sharing Business Information with the Enterprise

*Westin Hotel, Boston
May 2 & 3
Decision Support Technology
617 354-6400, Ext. 453*

Keynote speakers John Rockart of the Center for IS Research at MIT and Geary A. Rummler of The Rummler-Brache Group will outline the fundamentals of developing and implementing management-support systems. Industry leaders will conduct panel discussions. An industry roundtable luncheon and hands-on technology showcase are also scheduled. Registration: \$995

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Just don't expect it to roar.

Under pressure to be swifter, stronger and more agile, some organizations may be tempted to seek superficial solutions.

But in this era of unrelenting change, the true character of every enterprise will be tested.

So rather than shallow, short-term fixes, Andersen Consulting can help you achieve lasting improvements by aligning all of your essential components: strategy, technology, process and people.

Because these days, you either

transform the whole organization. Or risk becoming a paper tiger.

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Pricing To Please

Some CIOs are finding that running IS as a business within a business can be the key to satisfying users and stockholders alike

BY EUGENE G. LUKAC

Common wisdom has it that customers want low prices. Common wisdom has it that the lower the price, the happier the customer (provided quality is maintained). Common wisdom has it that "free is a very good price." Common wisdom is wrong.

The reason is not hard to understand. As the price of a good goes down, the demand goes up. When the price is zero, the demand is infinite. But if the available quantity of a good is limited, then demand will exceed supply. When this happens, customers cannot get what they want. If customers cannot get what they want, they will be unhappy. It's that simple.

The above is as true for information technology as for any other good or service. IT users who perceive that a request for IT results in little or no cost to them will overload the IT organization with their demands. Unable to respond to all the requests, the CIO faces user dissatisfaction, if not career limitation.

In order to cope with excess demand for their services, CIOs have attempted to use steering committees charged with deciding who gets how much of the limited IT resource. This approach may redirect users' frustration, but it ignores its root cause. The committee continues to control the supply side of the resource, leaving the demand side untouched. Users continue to perceive their limited access to a common corporate resource as hindering their ability to meet business goals. The IT organization is seen not as an enabler but as an obstacle to business success.

Another common approach is to allocate to users the cost of the IT resources that they consume, such as CPU cycles or direct-access storage devices. However, business managers don't want raw resources. They want finished products: paychecks processed, invoices issued, accounts updated. They have no direct control over the IT resources used in delivering services to them, and, furthermore, they are suspicious of the efficiency of the IT organization. This approach still gives users no assurance that they can get the services they need and, moreover, taxes them for their consumption of a resource they can't control. It is no wonder that their frustration and resentment often run high.

Fortunately, some IS executives are finding that there is a way to balance supply and demand for IT resources in the corporation, to dynamically direct resources to the highest-payback opportunities and to simultaneously satisfy the IT requirements of managers and the ROI requirements of stockholders.

These CIOs are using marketplace models to run their IT organizations as a business within a business. They are allowing the internal





HOW TO UNRAVEL THE CLIENT/SERVER MYSTIQUE.

First, accept that there is no mystique. Rather, there are hordes of slightly frantic software companies content to have you believe that effective open system solutions remain elusive while they rush to understand, develop, and market their interpretation of client/server. Then there's Lawson Software.

An Open Systems Foundation

At Lawson Software, we've been committed to open systems since our company was founded in 1975. We've always believed that to be a valuable business partner, an applications provider must offer choices for business strategy development. So for us, client/server isn't a new phenomenon. Instead, it's the next logical step in our development. And it exists today – fully developed and fully functional – in the latest release of our enterprise-wide, cross-industry, world-class business application software.

A True Client/Server Solution

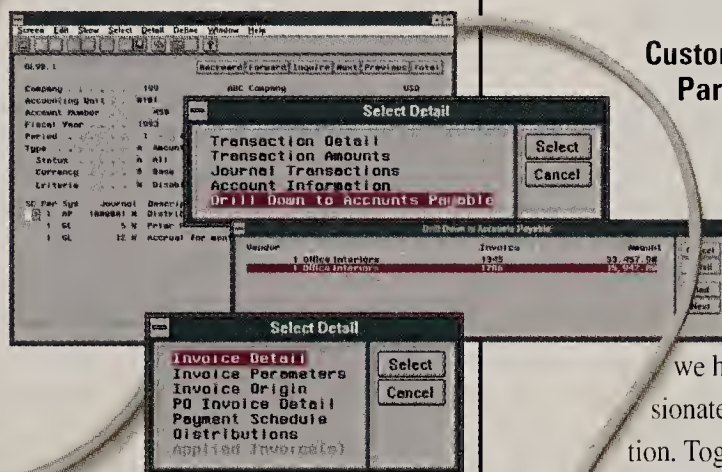
The truth is, client/server takes on a special meaning for each individual business computing environment. That's why we've structured our client/server solution as a comprehensive 3-tier architecture, delivering you maximum flexibility in hardware, database and user interface. It's why Lawson's products run across platforms like the AS/400 as well as UNIX systems such as the RS/6000 and HP9000. And it's also why we feature seamless support for a variety of leading databases. In short, we offer options that allow you to make the decisions. Based on your

existing hardware configurations and your plans for future development, you choose to place the components of client/server where they will deliver the greatest value and performance.

Optimized Information Management

Lawson's efficient use of technology leads to a system with the scalability demanded in today's changing world.

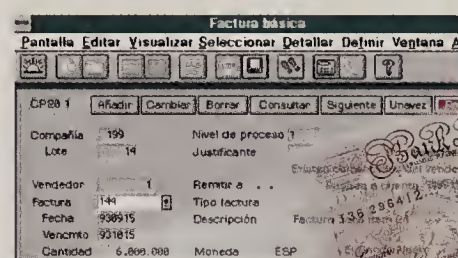
We incorporate the latest GUI technologies, creating a user-friendly environment that reduces training time. Individual users can manipulate windows, icons and tool bars to create a personal work environment that increases productivity. In addition,



Lawson has revolutionized the way users access information with our comprehensive "drill-around" capability: now a single click of the mouse allows transparent access to data from multiple applications and platforms. And finally, to truly maximize your options, Lawson has maintained the ability to interface our applications using character-based terminals.

Worldwide Computing Flexibility

Lawson's single, worldwide product set – featuring all the freedom of our flexible client/server architecture – means the ultimate in simplicity for large, international



companies functioning in a variety of intra-national markets. You'll find capabilities like support for multiple languages, currencies, tax codes and rates, as well as a variety of date and reporting formats. So whether your business is managing one site or sites around the globe, you can turn to Lawson Software for one total solution.

Customer-Focused Partnership

Lawson Software has always been focused on leading edge technology. And we have always been passionate about client satisfaction. Together, these two commitments have resulted in truly flexible business solutions created with your needs in mind. We'd like the chance to demonstrate this to you. You'll see how – from our system architecture to

our award winning client services – Lawson Software really does unravel the client/server mystique.

For more information call
1-800-477-1357 ext. 853.

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Fred was great.
Ginger was great.
Together they
were spectacular.

The partnership makes it work!

Fred Astaire certainly held his own. But when he paired up with Ginger Rogers, it was pure magic. The same holds true in business. When two diverse business departments forge alliances, the results are often nothing less than brilliant.

That's the idea behind the ESPRIT (*Excellence in Strategic Partnering for Return from Information Technology*) Awards Program. The ESPRIT Awards recognize the strategic partnership between IS management and business management as they apply IT to improve business value and increase profits. Since its inception in 1993, this program has recognized a select group of companies, government agencies and nonprofit organizations that are using IT to attain real business value in measurable ways.

If you can demonstrate the strategic value and increased bottom-line profits as a result of a technology investment, we want to hear about it. We urge you to participate by filling out the ESPRIT Awards application form bound in this issue of *CIO*. If the entry form has been removed, please call Brooke Burton at (508) 935-4449.

ESPRIT Awards sponsored by



THE MAGAZINE FOR INFORMATION EXECUTIVES

and

BOOZ·ALLEN & HAMILTON





APPLICATION FORM

The
ESPRIT
A W A R D S
F O R 1 9 9 4

*Honoring Excellence in
Strategic Partnering
for Return from
Information Technology*

*Sponsored by CIO Magazine and
Booz·Allen & Hamilton*

**Application Deadline
May 16, 1994**

With ESPRIT, partnership takes on a whole new meaning

part·ner·ship (pärt' nər-ship') *n* 1. The state of being a partner; an association of partners. 2. A contract entered into by two or more persons in which each agrees to furnish a part of the capital and labor for a business enterprise, and by which each shares in some fixed proportion of profits and losses.

—*The American Heritage Dictionary*

If there is one word that defines the ESPRIT Awards it's "*partnership*." This program honors those business and technology executives who have joined forces to plan the acquisition of information technology, implement it and quantify its strategic business value in both hard-dollar and soft benefits.

Recognizing Strategic Partnering

CIO and Booz·Allen & Hamilton created the ESPRIT Awards to recognize this spirit of cooperation as well as the ability to prove a positive and sustained impact on the bottom line from strategic IT investments. By communicating the payback of your technology solution, *CIO* and Booz·Allen & Hamilton hope to encourage other businesses to follow your lead.

Obtaining Real Business Value

What business goals have you achieved with your technology solution? Lowered costs? Raised profits? Increased market share? Enhanced image? The list is endless. There are both hard-dollar and soft benefits that come with IT investments. If you and your business partner can provide

tangible facts and figures about return on investment from information technology, we urge you to participate in the ESPRIT Awards program.

Our Challenge To You

If your technology investment is paying off, we want to hear about it. To participate, simply fill out this ESPRIT Awards application. The January 15, 1995 issue of *CIO* will feature profiles of companies, government agencies and nonprofit organizations that successfully document how their partnered IT investments have increased business value.

Then in early 1995, *CIO* and Booz·Allen & Hamilton will host a special awards ceremony honoring these winning organizations.

For additional information, please contact Brooke Burton at (508) 935-4449.

ESPRIT Awards Timeline

Applications Due:
May 16, 1994

Judges Select Winners:
September 1994

Announcement of Winners:
January 1995

Awards Ceremony:
Winter 1995

1994 ESPRIT AWARDS

Honoring Excellence in Strategic Partnering for Return from Information Technology

Sponsored by CIO Magazine and Booz·Allen & Hamilton

S**TATEMENT OF PURPOSE**
While most executives are aware of the potential benefits of information technology (IT), some remain unsure of its actual value to their organizations. In order to demonstrate how strategic IT investments initiated by a joint business/IS team can produce both hard-dollar and soft benefits, *CIO Magazine* and Booz·Allen & Hamilton are cosponsoring the second annual ESPRIT Awards. The honorees will be public and private companies, government agencies and not-for-profit organizations which have proven that strategic IT investments can have a positive and sustained impact on the bottom line. Winners will be honored at an awards ceremony and profiled in the January 15, 1995 issue of *CIO Magazine*.

CRITERIA

Winners will be chosen by a panel of independent judges from among entrants who have sent in completed application forms by May 16, 1994. Entries will be judged on the following criteria:

- The extent to which the system furthers the organization's strategic objectives.
- The measurable financial return the system provides to the organization.
- The level of partnership achieved throughout the course of the project by the business unit and the IS organization.
- The extent to which IT was key to the achievement of the overall business solution—the "couldn't have done it without technology" factor.

Telephone interviews, and in some cases face-to-face interviews, will be requested by the Booz·Allen screening teams. These teams may elect to visit the applicants'

sites in order to review in greater depth the system and the environment in which it is functioning, and to examine financial results.

ENTRY GUIDELINES

- The system must have been *operational* prior to July 1, 1992.
- Entries must be made jointly by the IS executive AND the business-unit executive for whom the system delivers value.
- Entrants must agree to be featured, along with their system and organization, in a *CIO* article.

DEADLINE

May 16, 1994

MAIL TO

ESPRIT Awards
CIO Magazine
492 Old Connecticut Path
PO Box 9208
Framingham, MA
01701-9208

- Entries must be complete. Incomplete entries may be returned for elaboration or disqualified.
- Entries must be on 8.5x11-inch paper, one side per sheet.
- The application form may be reproduced.
- Multiple entries from one company will be considered, but each entry must be submitted separately.
- Vendors, public-relations and advertising firms, consultants and other third parties may NOT apply on behalf of another firm. They are encouraged to forward this form to the "owner" of the system, or to contact *CIO Magazine* to recommend that an application form be sent to their client.
- All entries must be computer-generated or typed; no handwritten entries will be accepted.
- When feasible, an additional copy of the entry should be sent on a 3½ -inch disk. Electronic entries must be limited to word-processing and spreadsheet packages that are compatible with *Microsoft Word* and *Microsoft Excel* on an IBM or Macintosh platform.

1. COMPANY/BUSINESS UNIT

NAME OF PARENT COMPANY:

CITY, STATE WHERE HEADQUARTERED:

IF A COMPANY, IS IT PUBLICLY HELD? PRIVATELY HELD?

ANNUAL REVENUES:

INDUSTRY:

NAME OF BUSINESS UNIT OR ORGANIZATION:

CITY, STATE WHERE LOCATED:

NUMBER OF EMPLOYEES AT BUSINESS UNIT:

2. ENTRANTS

NAME OF ENTERING BUSINESS-UNIT EXECUTIVE:

TITLE:

NAME OF DIVISION, DEPARTMENT OR UNIT:

ADDRESS:

CITY:

STATE: ZIP:

TELEPHONE: FAX: () ()

NAME OF ENTERING I.S. EXECUTIVE:

TITLE:

NAME OF I.S. ORGANIZATION:

ADDRESS:

CITY:

STATE: ZIP:

TELEPHONE: FAX: () ()

3. SUPPORTERS

Please list four people who are willing to be interviewed with regard to the system, its development, its use and the value returned. At least one should be a member of the technology team that developed the system and should have played a significant role. At least one should be a primary user from the sponsoring business unit. The other two may be from either organization or represent

suppliers, customers or others intimately familiar with the system.

A. NAME:

TITLE:

TELEPHONE: ()

REASON FOR INCLUSION:

B. NAME:

TITLE:

TELEPHONE: ()

REASON FOR INCLUSION:

C. NAME:

TITLE:

TELEPHONE: ()

REASON FOR INCLUSION:

D. NAME:

TITLE:

TELEPHONE: ()

REASON FOR INCLUSION:

4. THE NOMINATED ORGANIZATION

Please tell us about your organization (company, business unit, agency) in 500 words or less. Include information on:

- when the organization was founded;
- mission statement;
- major products and services;
- markets served;
- any other data you believe to be relevant in terms of general background.

5. THE NOMINATED SYSTEM

Tell us about the nominated system and demonstrate its importance to the organization by completing the following sections. Please limit your material to five pages.

- **Objectives:** Identify the primary business objectives of the IT investment.
- **Scope and Impact:** Identify the functions (e.g., customer service, manufacturing, planning) that were changed by the system, the nature of those changes and their impact on the business. Identify other business-change initiatives tied to the IT investment.

- **Furthering Strategic Objectives:** Describe how the technology investment is furthering the organization's strategic objectives, including any new business initiatives. Note any significant event that would help us evaluate the nominated system's value. Examples might include a merger, a new distribution channel or a significant regulatory change.
- **Partnership:** Describe how the business unit and IS organization worked together throughout the project—from concept to implementation. What were the specific tasks fulfilled by the business unit? IS organization?
- **The Importance of IT:** Identify the different components of the overall business change (e.g., business reengineering, downsizing, cycle times). Explain the importance of the IT component to the overall business change. Could the results have been achieved without IT?

6. TECHNICAL PROFILE

Briefly describe the technology of the nominated system. Please include the names of major vendors and products. If you prefer, you may attach a document containing a technical description of the system, providing it is no more than five pages.

NOTE: The examples provided here are meant to be illustrative, not all-inclusive.

- **Architecture** (e.g., client/server, distributed, main-frame)
- **Hardware** (e.g., mainframe/parallel processor, minicomputer/server, desktop computers, handheld/portable devices)
- **Software** (e.g., operating systems, database system, shells, application software)
- **Software development tools** (e.g., CASE, 4GLs, GUI developers, object-oriented development tools)
- **Networking/communications hardware, software and services** (e.g., modems, routers, electronic-mail packages, carriers and public networks)

7. TRUTH OF INFORMATION/RELEASE

The following release must be signed by both nominating executives if the application is to be considered. Unsigned releases will invalidate the entry.

I hereby state that the information provided is true and complete to the best of my knowledge and belief.

I authorize the release and use of, in connection with the ESPRIT Awards program, any and all materials furnished by me or others at the company contacted for this judging. I understand that information submitted on this application or subsequently gathered during the evaluation and judging process may be used in articles or any other type of publicity relating to the ESPRIT Awards program.

I also authorize the release and use of my name, my company's name and my likeness, including but not limited to any photographs and any recording of my voice or image that may be taken of me for CIO Magazine. I agree that no compensation shall be due me or my company for such usage.

I recognize that failure to meet these conditions or to provide sufficient material that can be published can cause the application to be rejected at any point in the process at the sole discretion of the sponsors.

SIGNATURE OF NOMINATING BUSINESS EXECUTIVE:

DATE:

SIGNATURE OF NOMINATING I.S. EXECUTIVE:

DATE:

8. OTHER EDITORIAL OPPORTUNITIES

If you are not selected as an award recipient, are you willing to be contacted for inclusion in other articles in CIO Magazine? Yes ☐ No ☐

How did you learn about the ESPRIT Awards program?

- | | |
|--|---|
| ☐ CIO Magazine | ☐ Academician |
| ☐ Booz·Allen & Hamilton | ☐ Consultant |
| ☐ IS staff member | ☐ Systems integrator |
| ☐ Other publications | ☐ PR Agency |
| ☐ Vendor | ☐ Advertising Agency |

☐ Other (please identify) _____

C H E C K L I S T

Have you filled out...?

- ☐ Company/Business-Unit, Entrants and Supporters Information
- ☐ Return on Investment Chart

Have both entrants signed and dated...?

- ☐ Truth of Information/Release

Have you included on separate pages...?

- ☐ Nominated Organization
- ☐ Nominated System
- ☐ Technical Profile
- ☐ Additional Return on Investment Material

Have you checked off...?

- ☐ Other Editorial Opportunities
- ☐ How you learned about the ESPRIT Awards program?

9. QUANTIFYING RETURN ON INVESTMENT

Directions

- The table below provides a framework for identifying costs and benefits. Feel free to break down any line item into additional components, or to add new line items if necessary. Please explain how the figures were arrived at, on separate sheets if necessary.
- In quantifying costs and benefits, every effort should be made to quantify strategic and “intangible” benefits (e.g., competitive positioning, risk management). It would be helpful to attach any documents you have prepared that explain the system’s costs and benefits.
- You may also include your own return on investment calculations and frameworks to further explain your return on investment. These can be attached to your application form.

Guidelines for Quantifying Return on Investment

- Provide return and investment figures five years out from initial implementation. If the system has been in operation for less than five years, you may project future investments and returns *based on historical data*.
- All investments and expenditures made before implementation should be included in year “zero.”
- Distinguish actual costs and benefits from projected costs and benefits.
- To the extent the nominated system replaced older technology, the system investment reflected in the tables should be net of corresponding salvage values and ongoing costs.
- Return and investment figures should be stated on an approximated after-tax basis.

NOTE: The examples provided below are meant to be illustrative, not all-inclusive. All numbers are subject to verification.

Investment:	Year “0” 19__-19__	Year 1 19__	Year 2 19__	Year 3 19__	Year 4 19__	Year 5 19__	TOTAL
Technology purchases (e.g., hardware, software, lease payments, amortization)							
System development and implementation (e.g., systems integration and consulting fees, initial training)							
Ongoing system maintenance and enhancement (e.g., updating system, maintaining and replacing software, adding users)							
Ongoing system operations (e.g., ongoing training and consulting, help desks, other ongoing support)							
Nonsystems operational charges (e.g., increased labor or inventory, early retirement program for laid-off employees)							
Total Annual Investment	\$	\$	\$	\$	\$	\$	\$

Total Investment: \$

Return:	Year 1 19__	Year 2 19__	Year 3 19__	Year 4 19__	Year 5 19__	TOTAL
Incremental profits from enhanced revenue (e.g., new revenue streams, productivity improvements)						
Reduced operating costs (e.g., labor, material)						
Reduced capital investments (e.g., capital equipment)						
Reduced inventory						
Indirect cost avoidance (e.g., avoided hiring, fines, fees)						
Total Annual Return	\$	\$	\$	\$	\$	\$

Total Return: \$

Total Return on Investment: \$
(Total Return minus Total Investment)

1993 ESPRIT Award Winners

AT&T Universal Card Services

Marian Browne, *Vice President,
Customer Relationships*
Leslie Palmer, *Vice President,
Emerging Technologies*

City of Chicago, Bureau of Parking

Judith Rice, *City Parking Administrator,
Bureau of Parking*
Paul Vallas, *Director of Revenue,
Department of Revenue*

Complete Health Services Inc.

William W. Featheringill, *President & CEO*
Richard Harley, *Director of MIS*

Los Angeles County, Department of Public Social Services

Ray Garcia, *Bureau Director,
Bureau of Administrative Services*
Lisa Nunez, *Division Chief,
Computer Services Division*

South Florida

Water Management District

John Lynch, *Department Director,
Information Systems*
James D. Yager, *Assistant Executive Director*

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marketplace to shape the services they offer and are pricing them competitively. U.S. Bancorp, a financial-services organization headquartered in Portland, Ore., with \$21 billion in assets, has been one of the leaders in using this approach to satisfy internal customers. The experience of U.S. Bancorp's Information Services division illustrates how internal pricing works.

Products and Services

Setting prices is a multistep process. The first step is to determine what IS customers want to buy. The word "customers" is important. The consumers of IS services are seen as customers with purchasing power and choices—not as captive users. By talking with customers at U.S. Bancorp, IS representatives identified about 80 services that could be sold, including checking-account processing, credit-card processing and electronic mail. Unlike MIPS, CPU seconds or database transactions, for example, these are the things customers really want to buy. Defining IS's offerings in these terms, then, uses the units that are most natural to the customer.

Packaging

The next step is to decide how to package each of the services. Electronic mail, for example, can be sold by the time spent online, by the number of notes sent or received, by the amount of storage used or by the ID that is used to access the system. Again, IS representatives consult the customers to see what is most natural to them. Customers' ability to understand and control what they buy is the most important criterion for selecting the packaging units. In the case of electronic mail at U.S. Bancorp, the manager controls the number of staff members who are authorized to access the system. Once that decision is made, the manager cannot control the number of notes sent or other measures.

Measuring Usage

After customers indicate how they want to buy a service, IS must determine if that is a unit that can be measured. For example, can IS measure

Since IS exists to serve its customers, its entire budget must ultimately be traceable, directly or indirectly, to marketable products and services.

the number of people in each department who are authorized to use electronic mail? The measurement process must be simple enough to perform routinely. If it is not, a different unit—one that can be measured—must be negotiated.

Total Cost

The next step is to calculate the total cost of providing each of the services. Since the IS organization exists to serve its customers, its entire budget must ultimately be traceable, directly or indirectly, to marketable products and services. This is not as ominous as it sounds. Conceptually, it can be thought of as a large spreadsheet with IS services as row headings and departments within the IS division as column headings. It can be completed by a financial analyst in a few weeks. In this framework, the cost to provide electronic mail includes not only hardware, software and direct support staff but also administrative staff, supplies, R&D, building rental and insurance. It is a fully loaded cost.

Unit Cost and Price

The unit cost for each product or service is, of course, the total cost of providing the service divided by the total number of units of service provided. Pricing, on the other hand, is not a calculation but a decision that must be made taking into account the unit cost as well as market conditions. For example, pricing below cost may be temporarily desirable in order to introduce new services into the marketplace.

Review and Benchmarking

As a final check, a review by an independent third party serves to increase confidence in these calcula-

tions. In addition, benchmarking—comparing prices against those of suppliers of equivalent services—reveals the relative efficiency of the IS organization. As a result of such comparisons, U.S. Bancorp's IS organization can boast that it will meet or beat any competitor's price, yet still fully recover its costs.

Customer Satisfaction

When customers can choose to buy unlimited quantities of high-quality goods at unbeatable prices from a service-oriented staff, it's hard for them not to be satisfied. That is the key to IS customer satisfaction at U.S. Bancorp.

The decision to invest in IT solutions is made by the business areas that will generate revenue for the corporation. They are in full control of what they buy from IS, but they must pay for their purchases. Their ability to invest is limited only by their profitability. Given this responsibility, business managers make better requests and decisions, based on their business needs, than they did before. And they no longer overwhelm IS with requests.

IS, meanwhile, is expense-neutral: It simply recovers its costs through the services it provides. And because IS prices must beat the market, IS is continually driven to improve efficiencies, giving customers even more service for their IT dollars.

"Free" is not a good price. It cannot ensure that IT consumers get the services that will satisfy their needs. On the other hand, a price that recovers the costs of readily understood services enables a dynamic balancing of supply and demand. It stimulates a continuous search for the highest-payback technology investments. And it demands ongoing improvements in IS efficiency. Thus, it creates the win-win framework that allows the CIO to satisfy the IT requirements of the business areas while protecting the best interests of the shareholders. 

Eugene G. Lukac is vice president of finance and marketing in the Information Services division of U.S. Bancorp, based in Portland, Ore.

Trident Hospital wanted a quicker way of transferring radiological images.



A FASTER SET OF WHEELS WASN'T IN THE PLAN.

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The search brought Trident to a partnership with Martin Marietta to realize their vision of transmitting patient images real time to multiple locations. Prior to the new system, images were transferred using a courier or they were transmitted over low-speed phone lines. With the new integrated system, images that took over an hour to reach their destination now take seconds to arrive - the time it takes to warm up an engine.

To help Trident meet its goal, Martin Marietta drew on more than 25 years of systems integration experience and provided the information technology expertise required to identify, develop, and deploy this strategic initiative. Working closely with GE Medical Systems and BellSouth, Martin Marietta developed a detailed design, implementation, and test plan for the first phase of Trident's radiology network.

In less than 5 hours, on the evening of September 13th, 1993, this team had completed the integration and test of the newly networked system. At 8:00 AM on September 14, 1993, hospital technicians began transmitting the first image using the new system. Within seconds the image was available for viewing at a remote site.

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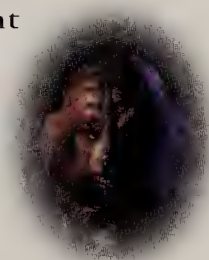
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Boole & Babbage

The Brouters of Addison County

A man, a woman,
a book, a router,
a bologna sandwich,
a memory...

BY TRIPP STRANGE

My wife, Mrs. Strange, accidentally made me read a certain slender little best-selling book by telling me again and again that it was exactly the kind of thing I'd never appreciate, not even in a lifetime of trying. She held the book up in the air like it was something exalted, unattainable by louts. And I nodded, fully shamed, as though agreeing that I must be a lout.

She said that all the women she knew were reading it, sitting up alone at night, with Ted or Arsenio turned off or muted, weeping for joy at the discovery of a real man who wasn't afraid to truly, deeply love someone and then vanish forever, after about a week or so of intense, poetic love-making.

"Sort of like a systems integrator," I told her, provoking the dreaded *stare of death*.

So I read the book. And I've got to admit it,...I was reminded of *certain events* that I hadn't thought of in many years. Events that were *mystical* and *primal* and, well, *quiet* in a

deep and abidingly *intense* sort of way. A door opened to my past, a door that I only occasionally crack, a portal back to the time when I was living in Addison County, way up in Northern Minnesota, the place where (a famous troubadour once sang) "the winds hit heavy on the borderline...."

Listen...

It was winter 1985 at Boundary Insurance Corp., a firm that then specialized in providing insurance for prize-winning farm animals of high breeding value (and which now specializes in houseboats, Airstream trailers and kayaks). Back then, though, Boundary was a thriving enterprise, having virtually captured the niches for beefalo and Vietnamese potbelly pigs (which were then both in vogue).

I was head of the information center (which is what we used to call the help desk). Since I tried my best never to speak to them, none of the users actually knew what I looked like. So it was possible for me to roam virtually at will through the company's halls without fear of harassment or assault.

One day I sat at my customary table in the cafeteria with my data dictionary propped open in front of a bologna-on-white with yellow mustard. (Data dictionaries were things we used in those days because no one in business agreed about what "business objects" ought to be called: Someone in benefits would use the word "employee" to mean what someone in manufacturing meant by "worker" and someone in finance meant by "overhead unit" and someone in admin meant by "manager" and someone in marketing meant by "jerk.")

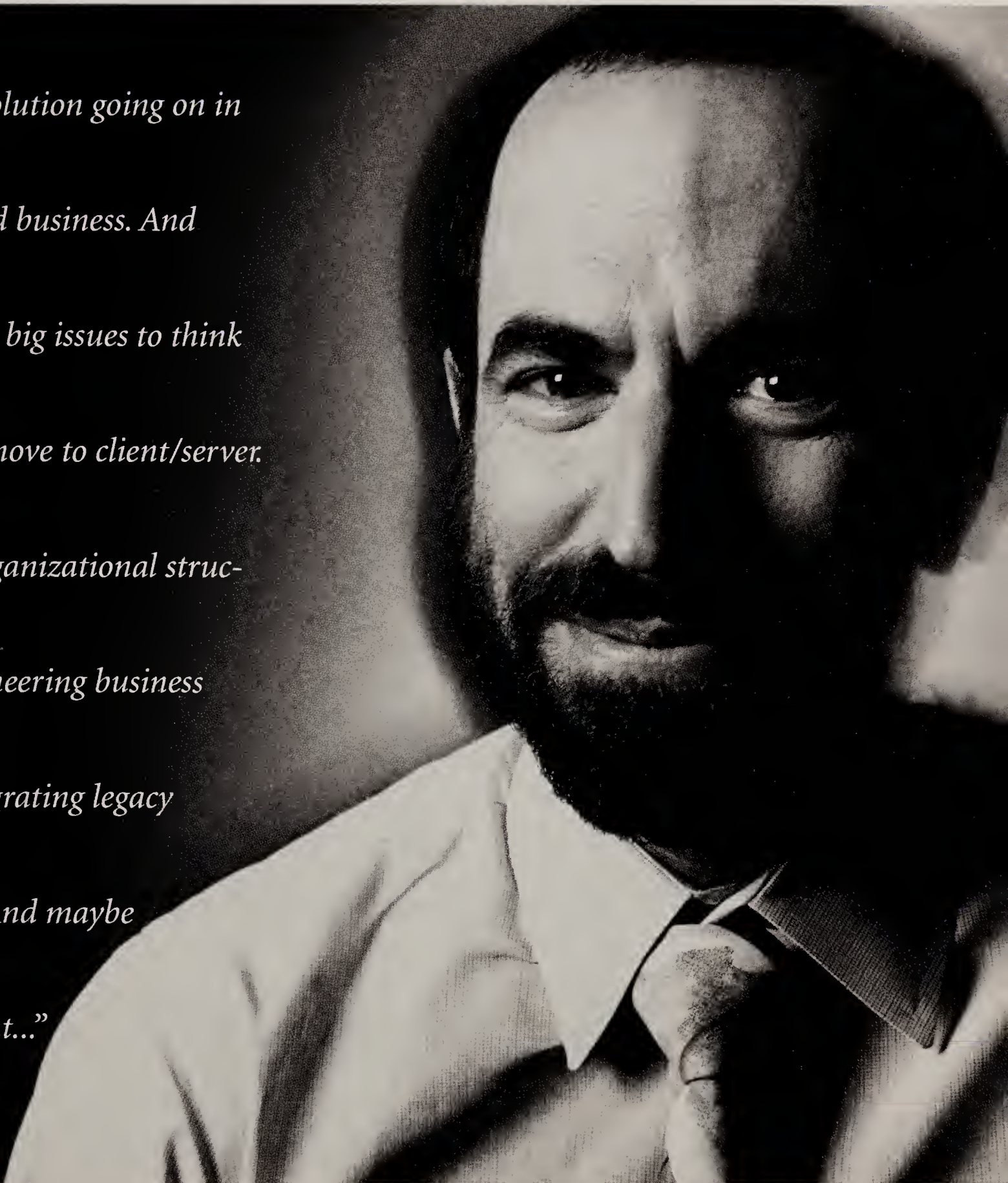
We were deep in the midst of a vast recoding of the terms then in use at Boundary, and there were



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endless bitter meetings during which people argued ardently about language; eventually—once the participants were completely angry and worn out—some compromise ruling emerged that preserved as much of the ambiguity as possible but was still complicated enough to feel a lot like change.

It fell to we of the information center to deliver to users the news of these fresh ambiguities. We did it over the message system (what E-mail used to be called), anonymously and safely, often after lunch, when the *jerks* and *overhead units* were generally too besotted with North Country carbohydrates to resist or complain.

I was not very happy in those days. As you can probably remember, IS was then a thankless discipline—no guts, no glory, no strategic advantages anywhere on the horizon. There were no “CIOs” as such; that was just the brazen little scam of magazine publishers and academics like Nolan and Norton (whoever they were). Mrs. Strange was preoccupied with her small children (our own overhead units), and so had little time to give to me. It was possible, in fact, to go weeks without my seeing in our home another living creature. I consequently kept late hours at work, coming and going as a stranger under my own roof.

It was while I was rereading for the umpteenth time the new definition of depreciation (“the tendency of all things to lose their value over time and as such to be applied against the taxable asset base”) that a shadow fell across my table.

“May I visit with you?” said angular Roberta Kincaid, in her lavishly husky voice. Roberta was sales director for CommuniCom, a brouter vendor based in Chicago.

“Of course,” I said, scanning the cafeteria and observing that it was nearly deserted, dotted with many empty tables.

“Thank you,” said Roberta. “You seem...kind.”

There was something about her, about the way she held her tray,

about the way she could speak without seeming to move her lips, so the words just drifted out into open space and floated there, each like a single playful petal from a perfect rose, all of them finally coming together, seeking new union.

“I’m not, though,” I said, meaning

Since I tried my best never to speak to them, none of the users actually knew what I looked like. So it was possible for me to roam virtually at will through the company’s halls without fear of harassment or assault.

kind. I imagined a new entry in my data dictionary, a fresh definition of the word “kind” that could even begin to encompass Roberta Kincaid.

She smiled. “I sell brouters,” she said, in a matter-of-fact way, as she set the tray upon the expectant table and made ready to follow it down to rest. “I have occasional business here in Addison County.”

“Yes. I’ve heard about you,” I said.

“And I of you,” she answered, holding my eyes with hers for an interminable second during which my fingers squeezed together through the half-eaten sandwich, oozing pink and yellow.

We spoke of many things that lunchtime. Of the inevitable and yet still unimaginable rise of PCs to the stature of “business-computing tools”; of the changing *essential* nature of networks, leading to *interconnections* on an enterprise scale; of the coming of ISDN and T1 switches and something she referred to cryptically as “client and server bondage.”

“Brouters,” she whispered after a trembling silence. She shook her long mane of auburn hair. “I’m part of a vanishing race,” she said. And this she stated flatly, without regret,

without a trace of rancor, as though it was only right that all things rare and different and asynchronous should be so threatened.

We spent an endless week together. She could field-strip and reassemble a brouter blindfolded in less than a minute. And this she did many times, simply, it seemed, to amuse me. But also with a deeper purpose, as though to teach me some lasting truth. Finally she let me try it myself.

“You possess the power,” she whispered as I felt for the pressure points at the back that released the matte-finish cowl.

“Yes,” she whispered.

Once inside, my hands roamed freely among the little diodes and ports and chiplets that made the brouter feel like nothing so much as a tiny village of *primal* adobe huts.

I felt her mouth by my ear. “I am the *data highway* and the *protocol converter*,” she breathed. “I am all the Hayes-compatible modems that ever winked on and off. I am the vast blue oceans of *information* flooding the amber plains of Mombassa.”

“Me too,” I said.

She covered my hands with hers. “*I am communication itself*,” she hissed. “*An open loop, a link, a gateway, a pipeline filled with messages.*”

Of course, she had to leave me. I stood in front of her rented Chevy Cavalier and watched the sunlight glint from the tinted windshield as she backed away from her berth at the Red Roof Inn. I raised my hand in a ghastly wave of desolation, believing nothing, understanding everything; believing everything, understanding nothing....

I still have the brouter she left behind. Sometimes at night I connect it to nothing and sit alone in the den at home. I watch the aimless LEDs light up in random sequences, vainly searching the untenanted ports for something, anything, some dim and distant memory that might flow in unexpectedly, reclaim its ancient meaning and then be routed elsewhere: back to Addison County. 

Tripp Strange is somewhere in America, trying to forget.

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WHAT IS MAXM?

MAXM is the world's leading client/server based application for Automated Enterprise Management (AEM)—the necessary integration of well established and emerging management disciplines. MAXM

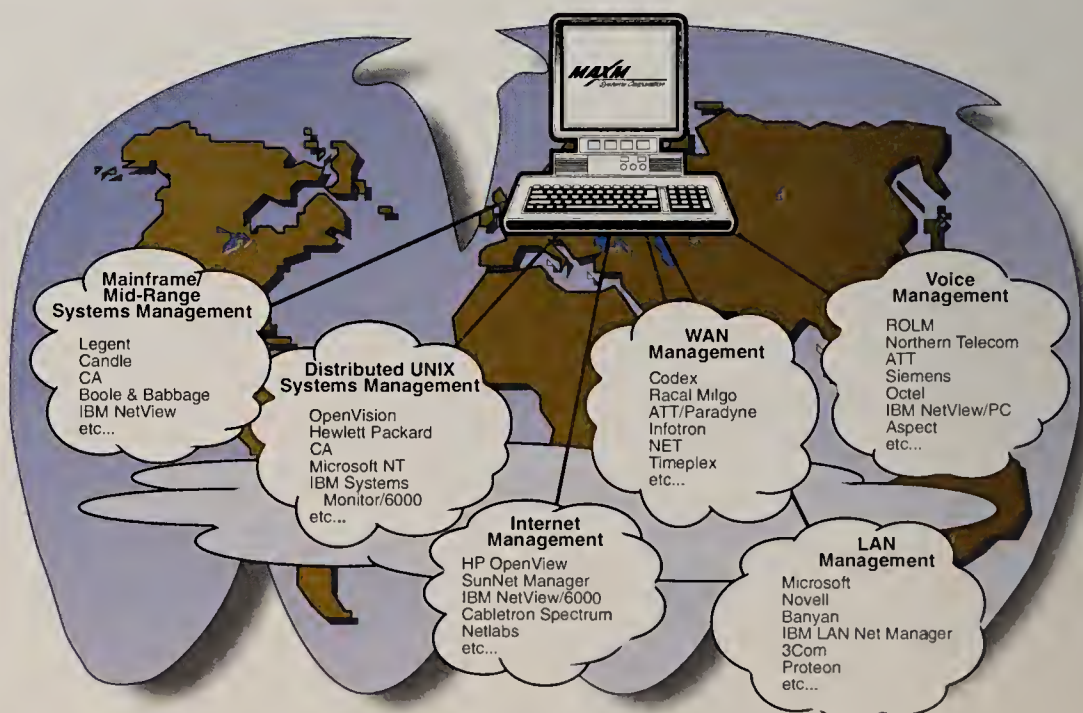
gives you a consolidated, integrated view of all the elements and management systems in your enterprise—on one powerful, centralized workstation, which can then be distributed as directed. It can automatically perform scheduled tasks—and automatically respond to network and systems events—that affect the overall efficiency of your enterprise systems.

As your company moves toward today's powerful new client/server architectures while managing existing complex, multi-vendor systems and network configurations, you're facing challenges that were unheard of just a few years ago. As the most powerful AEM technology on the market today, MAXM will help you meet those challenges, so that you can enjoy the benefits of

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MAXM INTEGRATES ALL THE TECHNOLOGIES IN YOUR ENTERPRISE.

MAXM's centralized or distributed operator workstations display information from all the disparate, vertically managed systems in your enterprise—voice and data systems, LANs and WANs, security and environmental systems—to provide the end-to-end visibility you need to readily solve problems as they occur, before



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The results? A proactive, rather than reactive, process for keeping your systems up and running. A way to identify "chronics"—network events that persistently undercut operations—and to resolve them before your internal users, or external customers, even know they exist. The removal of operator error—which, according to a study by KPMG Peat Marwick, causes 50% of all network outages—from the enterprise management equation. Freedom for your valuable IT managers to perform more strategic tasks. And, in a business climate where a few minutes' downtime can cost thousands of dollars—as it does in many transaction processing environments—enormous savings for your organization. ■

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been consolidated into a single staffed facility in Delaware and a "lights out" facility in New York, but the enterprise network now supports three times as many applications as before. A consolidated user help desk, which now responds to 95% of all calls for assistance without escalation, is staffed around the clock. With MAXM, operators can automatically check important systems at, say, 2:00 a.m. daily. Problems with applications and other key systems can be resolved automatically, and MAXM alerts an operator whenever intervention is needed—so that problems can be resolved before the workday's mission-critical operations get underway. MAXM's AEM capabilities have helped this customer reduce the volume of incoming system alert messages by more than 80%. AEM collects, filters, and prioritizes messages and alarms from dozens of different management facilities.

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MAXM has already made a positive difference in 38 of the world's most successful international corporations. So much so, that a group of IT executives in our client organizations has agreed to join me at a series of seminars in 1994, where we'll help you learn how MAXM can have a dramatic impact within your own organization.

In the meantime, I'd like to send you a comprehensive information packet about the MAXM solution. Just send in the attached reply card, or call 1-800-794-1021, and we will send you the MAXM package as well as our U. S. seminar tour schedule.

Regards,

A handwritten signature in black ink, which appears to read "Jack Reis". The signature is fluid and cursive.

Jack Reis

President, MAXM Systems Corporation

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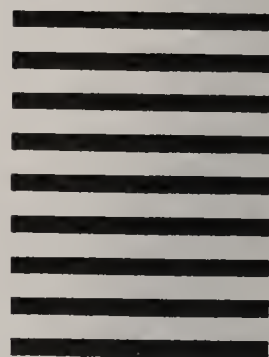
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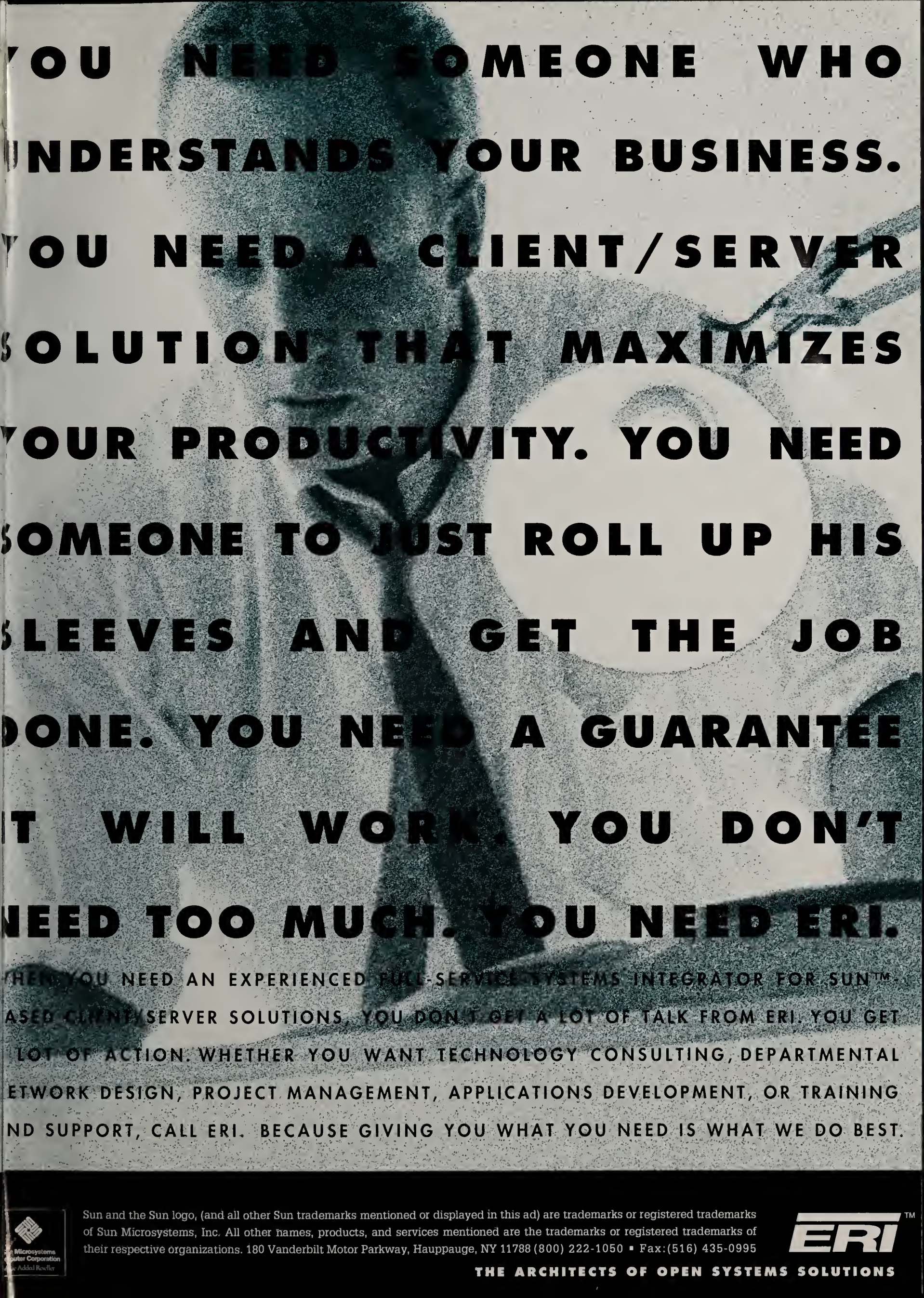
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STORYLINE

In these days of demanding customers and niche markets, competition is tough on the domestic front—and going global only makes things more difficult. But the world is where the new markets are. The following story, about one American firm's experiences in Africa, offers insights into the complex shades that customer service, partnership and technology can take on in frontier markets.



INTO AFRICA

• PART ONE •

Abdel Meguid Fouad knew the deal was coming apart, and he did not hide his panic. Fouad, a senior director with Synetics Corp., a systems-integration firm based in Wakefield, Mass., sat at the very edge of his chair, his face a palette of anxieties. The discussion among others in the room—more than a dozen of Fouad's potential African customers—was out of control, and it was Fouad's fault.

The disputatious potential customers were senior officials from several of the ports dotting Africa's West Coast. They had gathered in Libreville, Gabon, at the

end of October, for the 18th annual council meeting of the Port Management Association of West and Central Africa (PMAWCA). The group Fouad had ignited was a subcommittee of conference delegates who were meeting in advance of the conference's opening session in order to hash out, among other issues, a recommendation that called upon Synetics to complete the implementation of an information management system at the Port of Owendo, near Libreville, and to implement a similar system at the Port of Banjul, Gambia.

The delegates were divided by language (French and English) and by covert alliances. Fouad had pressed the group to reach a consensus on the recommendation favoring his company, and he knew from the outset of the meeting that Synetics had the votes to carry the day. But after hours of discussion, the sentiment in the room now seemed to be straying toward irresolution. Distressed, Fouad pressed harder—and indelicately suggested that Synetics might pick up its marbles and go home if this group of West African managers failed to satisfy him. That touched off an explosion of angry exchanges among the delegates. The meeting's translator was interrupted so often by angry rejoinders in both languages that she finally gave up and fell silent.

BY THOMAS KIELY



had been cultivating West African sales for three years, and managers from several of the ports that dot Africa's Atlantic coast were interested in the system the company offered. But passage of the recommendation remained a critical hurdle. It would legitimize Synetics as a player in this market and perhaps open up new avenues of financing for prospective customers.

Now that recommendation seemed far from certain. The subcommittee chairman raged against Fouad's indiscretion. Albert Kakou Tiapani, director general of the autonomous Port of Abidjan, in the

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Ivory Coast, vowed to spend princely sums on a competing French port-management system if necessary, to defy the American's attempt to "blackmail" them into passing the resolution. Synetics' friends and adversaries on the committee squared off against each other. The room was a cyclone of words.

Fouad, the project manager for the implementation at Libreville, was here by default. The hot seat at this important meeting would ordinarily be occupied by Paul Olinski, a Synetics senior vice president who headed up the company's commercial and international operations. But Olinski had been delayed by a snarl in air travel. While delays of all kinds are commonplace in Africa, the cause of this one was entirely European: Striking Air France workers had managed to shut down all international traffic in France, Gabon's primary air link to the developed world. As a representative of Sy-

ABDEL MEGUID FOUAD: *Cries of "blackmail" temporarily threatened three years of work by Synetics to forge business ties in West Africa.*

netics, Fouad was usually all tact and aplomb. But his one small mistake had begun to seem like a costly one.

Still, as the arguments reeled around the table, it became clear to all that the majority remained staunchly in favor of passage of the resolution, despite the vigor of the opposition and Fouad's gaffe. Face-saving speeches were made, and eventually the anger in the room guttered out. The delegates adopted the recommendation, with a few mi-

nor amendments, and Fouad sat back in his chair, relieved.

Driving back to his hotel shortly after the meeting ended, he looked exhausted but his voice fluttered with excitement. He conceded that he should not have lost his cool. His stab at playing hardball had smacked of colonialism. "They had to rebel against me," Fouad said. "You can understand—after all those years under the French or the English, they don't want to put up with that



colonial attitude. But we recovered."

The recovery was short-lived. A week later, the resolution would appear to be as much a snare as a victory.

SYNETICS: A Wakefield, Mass., systems-integration and engineering firm, also a value-added reseller of Lotus Development Corp.'s Notes (applications and training). \$35 million in revenues. Privately held.

Synetics is no stranger to global business. Founded in 1984 by veteran systems engineers and integrators, today it is a \$35 million privately owned venture. The company has long fed from the government-contract table: military work and systems for the Federal Aviation Administration, the Coast Guard and other

agencies. (Synetics has also been trying to gain more commercial business: Nongovernment work accounted for 15 percent of its business at the end of 1993, and the company hopes to increase that to 40 percent within the next few years.) Leveraging its government contacts, Synetics has worked in Saudi Arabia, France,



Denmark and Germany.

So Synetics officials were receptive to a pitch made in 1990 by a consultant who specializes in helping American companies do business in Africa. Mamadou Lamine Savadogo, president of Boston-based Marison International, believed that Synetics could beat out competitors such as Digital Equipment Corp. and Wang Laboratories Inc. for contracts to computerize management systems in West African ports. Originally from Mali, Savadogo knew what it took to make money in Africa—and believed that most American technology companies were heedless of the factors determining success or failure in this market. Savadogo knew Synetics' business, too, and recognized that the company's products and pitch matched his vision for a new approach to deal making in Africa.

As Savadogo described that vision three years later in Gabon—where it was finally bearing first fruits—it sounded like a recipe for partnership. This was on Saturday, two days after Fouad's victory in the committee room. Savadogo had traveled from Libreville to Port Gentil, a pretty, middle-class town on Gabon's oil-rich Southern Coast, in the company of several conference delegates who were touring the port and French-owned oil facilities.

"Africans have been burned [by vendors] many times," he said. As he talked, he gestured toward the nearby crowd of delegates from Senegal, Benin, Togo, Ghana, Nigeria, Congo, Cameroon and other West African nations—senior managers Savadogo had cultivated even before Synetics gave him the nod. "Europeans [and Americans, who usually sell in Africa through European subsidiaries] try to sell products built in Europe for a European market. But Africans say, 'It is not built for our environment.'"

In Gabon, for instance, the steamy equatorial heat will make computers

WILLIAM O'HALLORAN, BAHAR UTTAM and PAUL OLINSKI (from left): Synetics' products and pitch were well-suited to West Africa's new opportunities.



wig out in ways unimaginable to technicians from the developed world. Electric power may vanish without warning, shutting down both computers and the air conditioning systems that protect them. Communication links are raw and minimalist. African technicians, removed from the fast-paced changes in the technology sectors of the developed world, lack the know-how to troubleshoot or customize systems. Spare parts must come from Europe—often days away, even by plane. "You can't just ship a machine down from Paris, drop it and expect that it will

work here," Savadogo said.

In contrast, Savadogo helped Synetics sell partnership to Africa. As an integrator, Synetics sells solutions rather than equipment—and it is Synetics' unique pitch that it bundles "technology transfer" into its contracts. Rather than peddling software and hardware, Synetics pledged to develop a port system in concert with African port managers, working together in joint application development sessions. What's more, African technicians would help the Americans install the system, thereby learning the nuts and bolts of the



technology. Best of all, the Synetics system would be built around microcomputers—not the proprietary systems vendors usually sell to Africa—for easier and less-expensive maintenance.

It was the way Synetics did business, but it was Savadogo who developed the relationships necessary to get the unknown American company in the right doors and helped to point out the benefits of the fresh approach Synetics offered. It worked: By the time Savadogo traveled with his contacts to Port Gentil, the majority of them referred to the Synetics system as “an African solution.”

More accurately, it is a state-of-the-art solution: a client/server network of personal computers and servers connected by fiber-optic pipes. Office applications run in Windows, and the port-management applications developed by Synetics run in Lotus Notes. These applications track and manage the flow of ships, port equipment and documents. Information in the system can be traded from one terminal to the next within the port—or between ports—and will even translate information from French to English and vice versa. Eventually, the ports could even link up to ships at sea or to European ports. The Port of Owendo is also linked through modems to Synetics’ headquarters near Boston.

But this is Africa, where centuries rest in each others’ arms. Gabon’s two ports—Owendo in the north and Port Gentil in the south—will soon communicate LAN to LAN over modems. Yet the two are not linked by a passable road.

Fouad and Savadogo are fluent in both French and English. That was critical to doing business in Francophone Gabon. But their non-

French speaking bosses—Olinski and Synetics’ cofounders Bahar Utam and William O’Halloran—may have helped to seal the deal by their lack of facility with the language of Gabon. It was timing: Synetics appeared on the scene as Gabon was beginning to look beyond its French cultural legacy. The Americans, with their bubbly enthusiasm, easy social manners, presumptuous informality

ernment officials, such as Jean Ping, Gabon’s minister of oil and mines, believe that for its own economic health the nation must win commercial investment from many other nations, including Japan, the United States and Germany. Ping has been trying to sell Gabon’s unexplored sources of oil to U.S. investors, for instance. (Indeed, in 1992, the United States imported over \$900 mil-

SAVADOGO KNEW WHAT IT TOOK TO MAKE MONEY IN AFRICA—AND BELIEVED THAT MOST AMERICAN TECHNOLOGY COMPANIES WERE HEEDLESS OF THE FACTORS DETERMINING SUCCESS OR FAILURE IN THIS MARKET.

and ramshackle French were exotic, charming, refreshing.

France haunts Gabon. The government of Gabon has long been accommodating to the French, and France maintains military bases there to protect its interests in the African subregion. (Gabon provides nearly 10 percent of the oil used in France’s refineries and a substantial amount of the uranium used in French nuclear plants.) Gabonese officials of all ranks candidly acknowledge that French commercial heavyweights usually get what they want in Gabon.

“*The French*,” said the harbor master of the Port of Owendo, his voice dripping with contempt. “Those in power don’t say no to *the French*.” The harbor master was escorting a visiting writer along the quay to point out a French ship in the distance. It was docked at what appeared to be the end of a long industrial umbilical cord—a conveyance for manganese ore from a French facility on the shore. The construction of that conveyance had altered currents at the port, the harbor master claimed, with the result that the port was obliged to dredge twice as often as before, at great expense.

“The French are too much here,” he said.

But that is changing. Some gov-

lion in goods from Gabon, largely oil, and exported about \$54 million, largely oil-producing machinery.) In his spacious office high atop the energy ministry building in Libreville, Ping showed off his Motorola-made cellular phone.

In addition, Gabonese consumers are fast becoming eager shoppers in the global market. Japanese-made cars have crowded French-made cars off Libreville’s roads. Taxi drivers and college students listen to radio stations that play American rock-and-roll and country-and-western tunes. Middle-class shops stock Japanese video-game cartridges, American athletic shoes and Asian watches. A Gabonese college swaps students with a sister college in Brazil. Guests at the Okoume Palace Inter-continental hotel can watch MTV and CNN on televisions in their rooms. And at the time of the PMAWCA conference, one Libreville travel agency was pushing packaged vacations to Disney World.

Had Gabon’s troth remained pledged to France, Synetics’ primary competitor for contracts in the French-speaking West African ports would have handily trounced the little American company. (That competitor is Escale, an industrial-strength application developed more than a decade ago by the Port of Marseilles. Escale runs on minicom-

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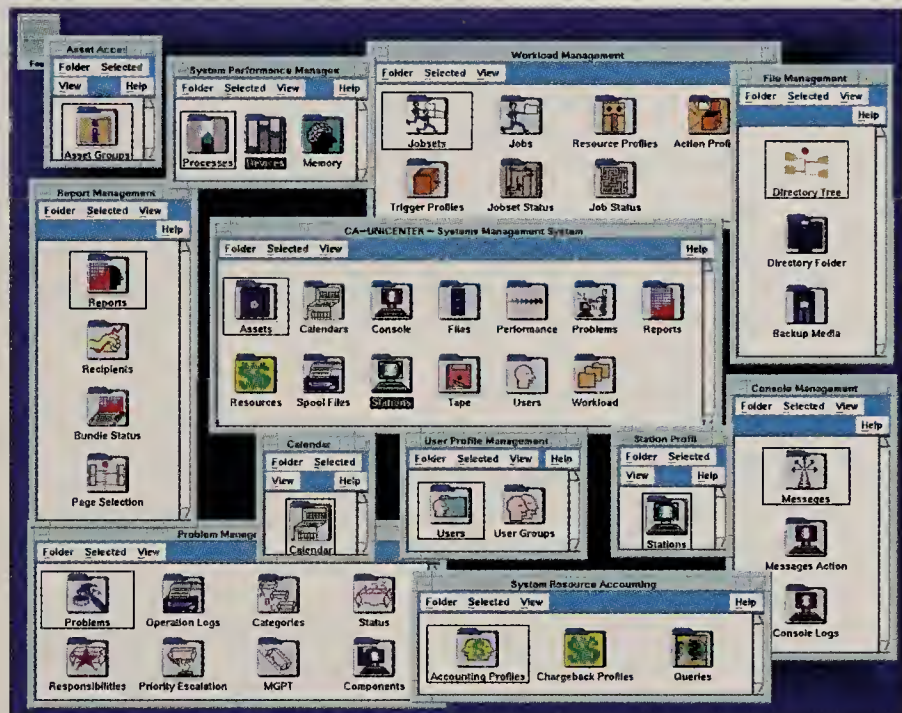
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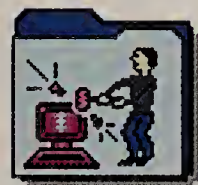
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puters made by Bull, IBM or DEC, but it is marketed in Africa primarily by Bull in partnership with Marseilles.) In fact, the French CFO of Gabon's ports, implacably opposed to signing a contract with an American rather than a French company, was eased aside by Martin Louri, the young Gabonese director general of the ports.

So as Gabon found itself tantalized by options other than those offered by its former colonial paramount, Synetics' top executives—who attended the conference to demonstrate their commitment to doing business in this region—played the anticolonial card simply by being themselves. A decade ago, Uttam's and O'Halloran's brash American style might have put off Gabonese government officials. Now Louri, for one, seemed almost to revel in it. When Louri was in America to sign contracts with Synetics, Uttam and O'Halloran invited him to their homes—something a French businessman would never do. Louri adopted the custom and invited the Americans to his home in Libreville.

There was one more thing that endeared the Americans to the West African managers: At \$500,000 (plus travel expenses), Synetics' system was one-third the cost of a competing French microcomputer-based system, and far less expensive in the long run than systems built for bigger machines.

Uttam, O'Halloran and Olinski—with Savadogo's help—made numerous friends in African ports. Managers from English-speaking nations such as Nigeria, Ghana and Gambia were predisposed toward the Synetics system anyway. "We're biased toward English-speaking companies, so we're biased toward Synetics," said a candid Anthony Cudjoe, public affairs manager for the Ghana ports. But even managers from French-speaking nations with big ports, large computers and knowledgeable IS staff—such as the Ivory Coast and Senegal—were intrigued by the new technology Synetics offered. And, af-

ter all, Synetics had already earned its stripes in one French-speaking nation.

The Americans were present when the PMAWCA council, as a body, adopted the resolution Fouad had worried through committee. In addition to directing Synetics to implement its client/server port-management systems in Gabon and Gambia, the resolution called for the company to make the system (still

SYNETICS WOULD NEED TO SELL MORE SYSTEMS IF IT WANTED TO SEE A RETURN ON THREE YEARS OF INVESTMENT IN AFRICA. BUT TO OBTAIN THOSE SALES, IT WAS OBLIGED TO MAKE THE IMPLEMENTATION AT THE PORT OF BANJUL WORK.

largely a prototype) more robust—with the help of African managers in joint design sessions. If all went well, the resolution concluded, Synetics could be recommended as a PMAWCA solution. This would not require other ports to purchase solely the Synetics brand of product—managers would remain free to purchase whatever they preferred. But the PMAWCA imprimatur would carry weight with port managers' bosses and governments—as well as with international lending institutions such as the World Bank.

That was a victory for Synetics, but also a snare. Synetics would need to sell more systems if it wanted to see a return on three years of investment in Africa. But now, to obtain those sales, the American firm was obliged to make the implementation at the Port of Banjul work. That gave the port's managers some clout with Synetics, first in the negotiations leading up to the implementation and then in the implementation itself.

A day after the resolution was adopted by the council, Alpha Barry, director of finance for the Gambia Port Authority, emerged from a back-room huddle with Olinski and Savadogo, looking like the cat that ate the canary. "Financing might be a sticking point," he said. Gambia could not put up the money itself, "so we're working with Synetics to find the money."

A very poor country, Gambia felt it needed a champion to help it raise money from institutions that underwrite development in the subregion. Perhaps Synetics could inveigle the African Development Bank to cough up the money. Or the U.S. Agency for International Development. "The ball is in their court in completing development of the prototype and helping to find financing for [the implementation]," said Barry, grinning.

"Gambia is certainly in the driver's seat," acknowledged Synetics' Uttam 10 weeks later in Wakefield. But Uttam and O'Halloran had their own reasons to grin. Synetics' international work was growing. In 1993 the firm had won contracts with the former Soviet Republic of Georgia; in the beginning of 1994 it signed a contract with England and began negotiating with Romania. (The firm is also about to open an office in the United Kingdom.) Ports in Iceland and Mexico had expressed interest in the system Synetics was developing in Africa. (From the start of this project, Synetics envisioned sales of port systems elsewhere in the world.) And the Port of Antwerp, Belgium, had called to talk about a marketing partnership that would combine Synetics' port system with Antwerp's training services.

But finances were still a sticking point in Gambia. Uttam suggested that some of the money might have to come from the Gambian government, eventually. After all, Gabon—steeped in debt—had come up with the money to pay for the Synetics system, and at the beginning of 1994 had signed a \$50,000 training contract with the American firm. Surely Gambia had funds somewhere. **CIO**

END OF PART I



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THE POINT *of* MOST RETURN

POS technologies are changing the way companies sell their wares. And because the information they gather feeds into many areas of the business, these technologies have a strong influence on corporate decision making.

BY PETER CASSIDY

Grocers around Tulsa, Okla., tried to warn Sylvan Goldman that his invention would bankrupt him. But Goldman wasn't a man easily swayed. While the Depression strangled the mid-1930s economy, he built a chain of food markets and stocked them with shopping carts, enabling his customers to serve themselves. He rejected the assessment that the new technology would be an open invitation to shoplifting. The rest, as they say, is history.

Since then, retail merchants have been less likely to underestimate the power of technology to enhance their trade. Today, a variety of industries are embracing new point-of-sale (POS) technologies and transforming the way goods and services are sold.



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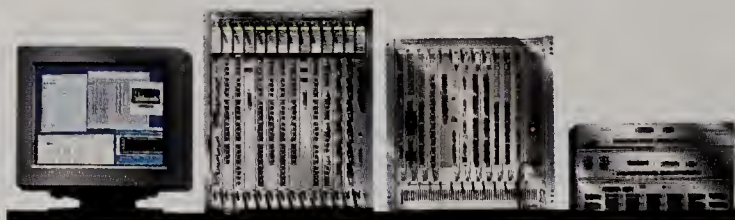
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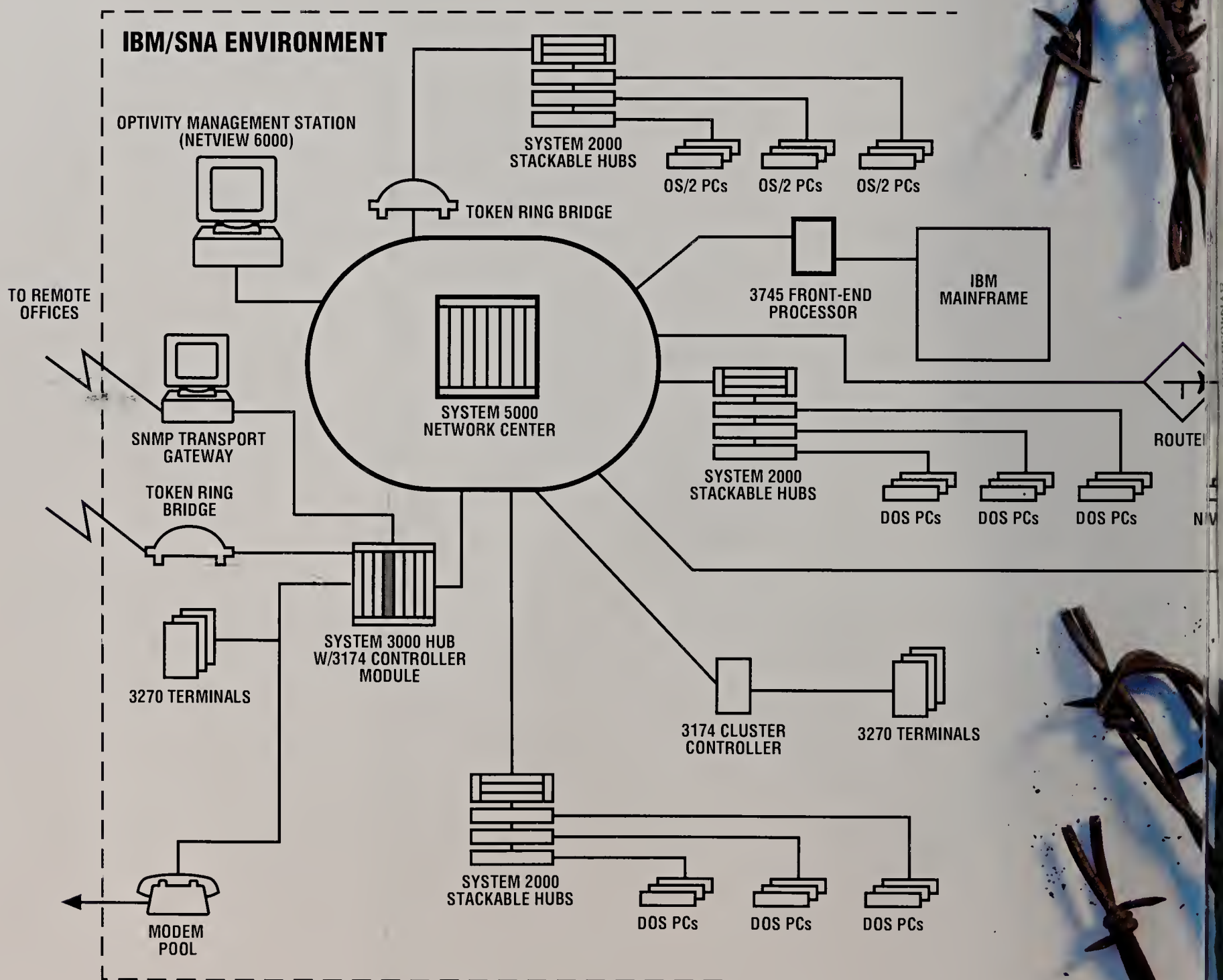
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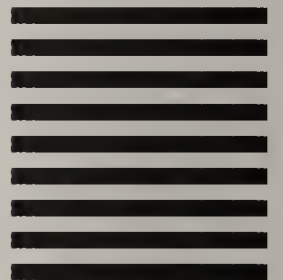
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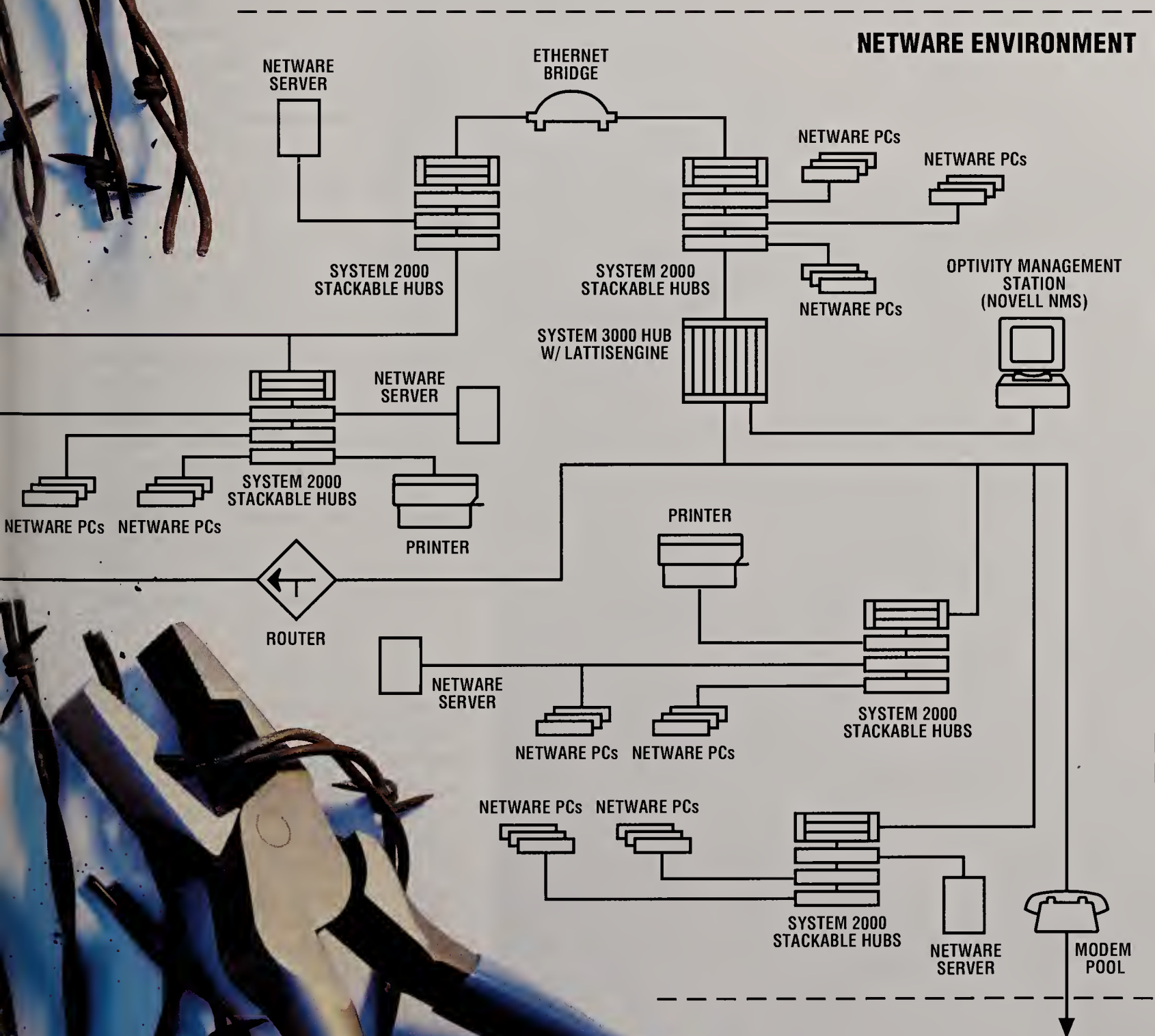
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New touch-screen terminals will allow customers to check investment-rate schedules, calculate "what if" scenarios for loans and get information on almost every product Huntington offers.

Banks are offloading standard offerings onto self-service technologies; fast-food franchises are using POS technology to ensure consistent customer service, and grocers are designing micromarketing initiatives at the point of sale. Looking to the frontiers of retailing, Goldman's

heirs are facing something not even he could have foreseen: the technological displacement of the point of sale as we know it.

According to many observers, the point of sale is no longer just a place where raw value is transferred. POS technologies now contribute directly

to every segment of business management—from marketing to inventory control and even personnel. As a result, the point of sale is becoming the new nexus for decision making within the enterprise.

SELF-SERVICE BANKING

1994 will be remembered as the year that point-of-sale technologies advanced on the territory of the bank branch manager after having already seized the domain of the tellers. General acceptance of self-service banking (as evidenced by the ubiquity of ATMs), combined with recent technological developments, has convinced financial institutions to take the next step: allowing customers to negotiate items, such as loans or investment products, usually discussed over the branch manager's desk.

The Huntington National Bank, of Columbus, Ohio, a nationally chartered bank with 352 branches in eight states, is introducing this spring touch-screen terminals that will allow customers to check investment-rate schedules, calculate "what if" scenarios for loans and get information on almost every product Huntington offers. Customers requiring assistance can call for a direct videoconference link with an adviser, who will appear in a window on the console's video screen. This window provides full two-way communications without interfering with the rest of the presentation.

The terminals could even be used for closing loans, according to Paul Ayres, vice president of electronic banking. "There's no reason why not," he says. Two of the NCR 5682 terminals will be introduced on a trial basis at first: one at NCR Corp.'s world headquarters in Dayton, Ohio; the other at an as-yet-undisclosed locale.

What made this all possible, says Ayres, was AT&T's purchase of NCR (and the subsequent creation of AT&T Global Information Solutions) and its development of a chip for videoconferencing that demands a far lower transmission bandwidth than previous technologies. "The big



PAUL AYRES: Open a screen and close a deal.

difference [with the new video-transmission set-up] is that we're not using a dedicated phone line to do it. It costs pennies a minute, the cost of a local phone call on a business line, instead of a T1 line or switched 56-kilobit service."

Huntington expects to gain two important benefits from these installations: They will reduce the load at regular branches during peak-demand periods, and they will provide a low-cost branch alternative in malls, manufacturing plants and other high-density workplace areas.

As powerful as these terminals are, their success will vary depending on how and where they are set up, suggests Helen Troy, a technology analyst with The Tower Group, a banking-technology research firm in Wellesley, Mass. "These are places where you'll be discussing your financial affairs, the intimate details of your life," she says. "Are you going to be comfortable doing that at a bunch of terminals in a shopping mall?"

SEAFIRST, a \$16 billion bank and Washington state's biggest, has addressed that issue by segregating the area where customers negotiate products at its automated facilities in four malls around suburban Seattle. Seafirst's self-service banking centers feature three separate interactive consoles: the familiar ATM for the cash-and-dash set, an NCR 5682 terminal for customers who have queries about Seafirst's credit and investment products, and an enclosed booth for customers who want to discuss those products.

This booth, which is manufactured by Personal Financial Assistant Inc.,

a financial services organization in Charlotte, N.C., enables customers to carry out transactions in total privacy. By picking up a telephone, the customer establishes a video link with a sales representative at Seafirst's Seattle headquarters. Both customer and bank rep can input data during the interactive session. When the transaction is complete, the customer can inspect and sign documents generated by a laser printer right in the booth. Those documents can be left in the receptacle in the booth (much like the depository in an ATM) or handed to the bank representative who works as a roving greeter and information desk at each installation. According

to Kathryn L. Munro, executive vice president and manager of retail delivery systems for the bank, the only transaction that can't be conducted in the booth is closing a first mortgage.

These new point-of-service technologies will enable banks to reduce staff dedicated to transaction processing and to "get a consistent message across from all of our employees," says Ayres. From a quality-control standpoint, these technologies will make possible an unprecedented amount of centralized control, bringing the banking enterprise, for better or for worse, closer to the paradigm of air-flight reservation services. Whether they



KATHRYN MUNRO: *A bank-in-a-booth can handle most retail transactions short of first mortgages.*

*"We're selling you back your time.
Anything we can do to cut two seconds
off the transactions, we'll do it."*

—Mark Factor

radically change the banking platform will depend on what customers do with the new hands-on power they get from remotely conducted banking, Munro and Ayres agree.

FAST-FOOD SERVICE

Every business has its own manner of service delivery, or at least one that executives want to project to the public. Sophisticated POS technologies, as never before, are enabling companies to ensure the consistency of that style at the point where their customers meet their representatives—a particular challenge for fast-food operations, which experience staff turnover levels of

up to 400 percent a year.

Franchises of Taco Bell Corp. and Kentucky Fried Chicken Corp. (KFC), PepsiCo Inc. subsidiaries, are conducting large-scale trials of a PC-based POS terminal that will do more to ensure the accuracy of orders than any dozen snarling managers. The terminals replace the usual array of keys with touch screens that change to prompt counter personnel through every step in the order-taking process. The first screen displays the meal choices. Once a meal is selected, another screen appears querying the variety: For a chicken dinner, for example, the order taker is prompted to select plain or extra crispy. The next screen offers drink selections. At no time can the employee skip a step, ensuring the most efficient and consistent processing of orders.

Ken Harris, vice president of information systems at KFC, headquartered in Louisville, Ky., says the platform PepsiCo is developing will ultimately support frequent-purchaser programs in which restaurant-sponsored token cards (not unlike airline frequent-flyer memberships) provide participants with benefits and discounts—and KFC with more-detailed information on customers and their buying habits. "We'll be able to gather information about cus-

Benefits Gained

Many businesses are using POS technologies to co-opt customers into bearing more of the sales-transaction workload. The technologies also make it possible to redeploy employees to activities that add value to the retail experience.

Financial services: The idea that self-service banking technologies are only useful for the simplest transactions is being debunked. Also, by advancing the centralization of some tasks, floor personnel can get to the business of selling.

Fast food: More than in any other industry, fast-food companies have had to examine how to make the point-of-sale experience consistent and pleasurable with a transient workforce. They're doing it using computer technologies for the active—yet remote—management of their employees.

Retail food and merchandise: Retailers have proven the power of front-end scanning to control back-end ordering and invoicing processes. With new self-service scanning technologies, they are even pointing to a day when the point of sale might simply disappear.

tommer acceptance [of new products, in particular,] and frequency of use," Harris says. This data will be used to better target marketing campaigns and fine-tune product promotions. "We're...developing systems to capture and use that information," he adds. "The mechanics of how that is going to happen are not final."



KEN HARRIS: *Service is the excuse; customer data the kernel.*

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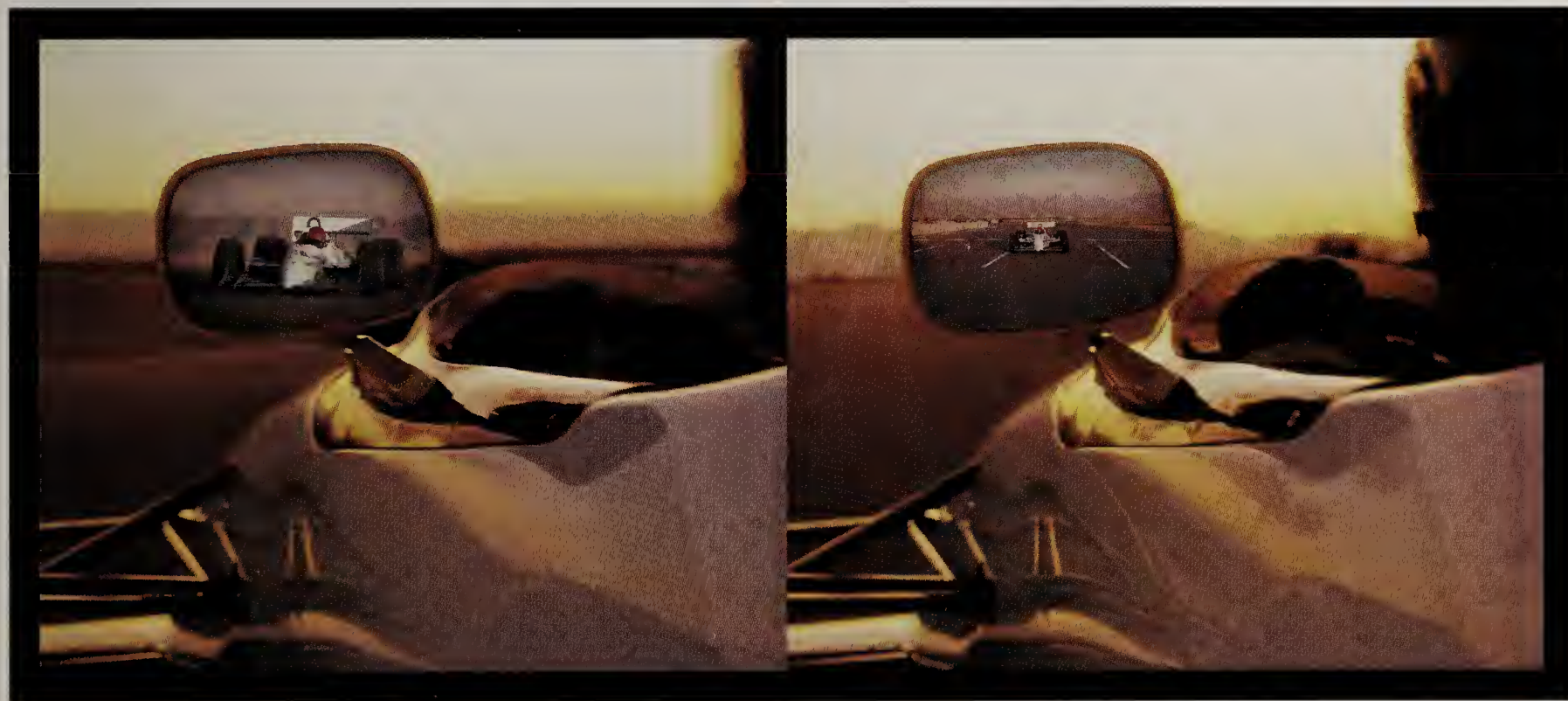
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Harris believes the system will be so easy to use that KFC will put terminals onto the restaurant floor as self-service devices. Customers could do their own ordering, use a debit card to pay for the meal and advance to the counter with a claim ticket. This roughly follows the service experience of another familiar vending technology: the ATM.

Taco Bell's Restaurant of the Future program has already installed in four restaurants beta units of a POS technology that uses many features of the PepsiCo platform. Since last summer, customers have been invited to order their meals through standing, touch-screen-based self-serve consoles. One store manager in Massachusetts reports they are quite popular, used by more than 65 percent of his customers.

POS TECHNOLOGIES are also helping to accelerate the already-hypersonic service of fast-food operations.

Mark Factor, MIS director at Au Bon Pain, a Boston-based chain of more than 200 urban cafes, likes to say that his company sells two products: food and time. "We're selling you back your time. Anything we can do to cut two seconds off the transactions, we'll do it."

Au Bon Pain is looking to wireless computer communications to help shave off the next two seconds. The company is designing a communications system that will allow managers to reconfigure their stores for optimum service at different peak periods, Factor says. Registers could be moved to where the action is (the pastry counter, for instance). Small, portable terminals, based on the Apple Newton technology and its analogs, could be set up to receive orders from the cash registers when counter personnel key in customers' requests. Orders for coffee and pastry would be transmitted to the



ED MARTIN: *Customer profiles that automatically trigger marketing promotions.*

proper stations; an employee filling coffee orders would know to take a light coffee, no sugar, to register No. 5. These terminals could be attached to the wall with Velcro so that they could be moved to the soup and sandwich stations, for instance, at lunchtime.

RETAIL SCANNING

While customer service is an important frontier, it is by no means the sole area where POS technologies are changing the dynamics of retail operations. Scanning has had a tremendous impact on back-end operations in the retail food and merchandise trades.

"Scanning at the point of sale has been unbelievably beneficial in operations," says Jim Reider, senior consultant for consumer product activities at Arthur D. Little Inc. in Cambridge, Mass. "The name of the game in retail is managing your in-

ventory, and scanning helps inventory management like nothing else."

At first, retailers used the information provided by scanning to take back some of the power they had

"The name of the game in retail is managing your inventory, and scanning helps inventory management like nothing else."

—Jim Reider

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lost to big manufacturers, according to Reider. Previously, retailers were not equipped with the data-processing power to compare sales of similar products. And since consumers were loyal to particular brands until the past decade or so, the general wisdom was that the manufacturers controlling the largest advertising budgets would sell the most products. Retailers bought accordingly.

Scanning provided stores with a means of determining that, in fact, brand X wasn't moving any better than brand Z. Retailers used this knowledge as leverage with their suppliers: If the manufacturer didn't deliver a better deal, it would lose shelf space to one that would. The proof of this shifting power, Reider says, is in the numbers. Eight years ago, only 35 percent of manufacturers' marketing dollars were spent on trade promotions that benefited the retailer. At the end of 1991, that was up to just less than 50 percent.

Now, however, the pendulum is swinging back toward the middle. The most technologically savvy retailers are using scanning data cooperatively with manufacturers to better monitor and control inventory in order to achieve the benefits of just-in-time delivery.

WAL-MART STORES INC., a national chain of discount retail stores based in Bentonville, Ark., for example, transmits megas of sales data to Wrangler, a major clothing manufacturer, about the day's clothing sales. According to the September/October 1993 issue of the *Harvard Business Review*, Wal-Mart and Wrangler analyze the data in order to make the most-informed decisions on delivering product for the next day's trade.

The idea of sharing POS data may offend some sensibilities, but the results benefit every party involved in the transaction. Customers get the clothes that the sales data indicates they want; Wal-Mart has lower inventory costs; Wrangler can make better decisions on design and on its own inventory needs.

Supermarkets were among the

first businesses to harness the power of POS scanner data to control inventory and learn the effects of product promotions on complementary or competitive products in the store. Managers at Save Mart Su-

a device that looks like a telephone to self-scan their purchases as they shop.

So far, the handheld scanners, which are simple to use and greatly speed checkout, are proving very

For more than a year, the Albert Heijn supermarket has offered customers the option of using a device that looks like a telephone to self-scan their purchases as they shop.

permarkets, a chain of 95 stores in central California, frequently use scanner data to examine the results of product promotions on their stores' individual IBM AS/400s, according to Ed Martin, director of information systems.

"Say one week we run an item [on promotion], and we can see the sales of that item and the impact it had on the entire category," Martin says. "If you sell heavy-duty laundry detergent three weeks in a row, what happens in the fourth week? Does everyone come in and load their carts [in the first three weeks] and not come in again?"

Save Mart also uses the power of technology to sculpt promotional initiatives at the point of sale. "Say someone spends 50 bucks and did not buy meat," says Martin. "It'll generate a coupon to give them a dollar off meat on their next visit.... It has worked quite well to make people more familiar with all the parts of our stores." The process is anonymous, yet in an instant the technology finds the marketing opportunity in that customer's profile and responds.

THE FINAL POS FRONTIER is being approached in a little town in the Netherlands called Geldermalsen. For more than a year, the Albert Heijn supermarket there has offered customers the option of using

popular, according to Frank Riso, senior marketing manager of Symbol Technologies Inc., of Bohemia, N.Y., which makes the scanning device. When customers are done shopping, they go to the front of the store and have the items without bar codes keyed into a register. The scanner is attached to the register, which computes the total purchase amount. "Of course, not every customer uses them yet. That level of acceptance is 5, 10, 15 years in the future," Riso says. Currently, 96 units are in operation at that store.

The logical conclusion to self-service scanning and debiting services is a "front-end-less type of store," Riso says. Shoppers would key their bank codes into the scanners, which would tally the purchases as they go along. At the conclusion of the shopping session, the touch of a button would transmit the total purchase amount to the customer's bank, debiting his or her account.

What will happen after the point of sale disappears? With the back end already automated for inventory replenishment and price margins about as thin as they can be, retailers will have to compete more on the real point of the point of sale: customer service. 

Peter Cassidy is a technology writer based in Dorchester, Mass. His E-mail address is pcassidy@world.std.com.

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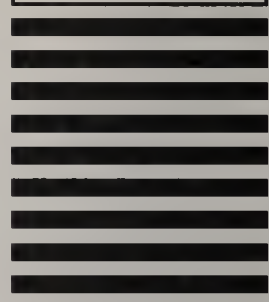
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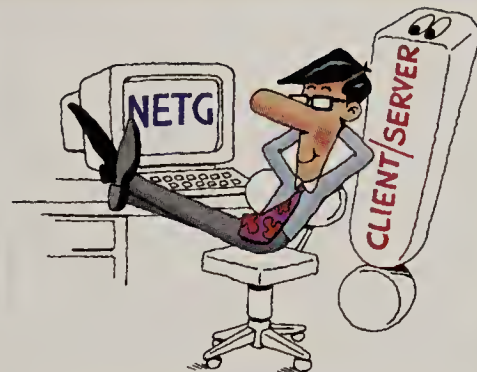
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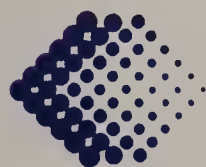
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BY MICKEY WILLIAMSON

WHAT DO YOU GET WHEN YOU CROSS A TELEPHONE company with a cable-television system? Sorry, but you'll have to wait until things settle down a bit to find out. Change in the telecommunications industry is happening so fast that what seemed improbable two weeks ago will probably be announced tomorrow.

"Never have we been on the verge of such possibilities for revolutionizing the way people work and live as we are currently," says Pat Russo, president of AT&T Global Business Communications Systems, in Basking Ridge, N.J.

Until recently—Jan. 1, 1984, to be exact, when a judicial decree broke up the Bell Telephone System—change was a concept not often associated with telephone service. In the late 1920s, when office telephones became commonplace, messengers went looking for other work. Some 40 years later, the ability to send digital data over telephone lines meant trouble for the companies that supplied armored trucks to chauffeur reels of electronic tape across town for safe-keeping. But the changes brought about by the advent of voice and data transmission are trivial compared with what we've seen in the past 10 years. And that pales in comparison with what the next 10 years will bring: ultra-high-speed transmission technologies and a vertically integrated information industry in which a single corporation may own telephone, broadcast and cable-television systems; radio networks; cellular telephone, wireless-communications and publishing companies; and even entertainment providers.

The coming convergence of every possible type of message in a single transport medium presages a broad spectrum of opportunities for users and vendors alike

"A number of very strange bedfellows are going to produce some new types of approaches that may represent new industries or, at the least, a whole new genre of service offerings," says Bill Wilson, vice president of strategic planning for WilTel Inc., a long-distance telephone company based in Tulsa, Okla. This will have implications for CIOs.

industry and its many technologies. The convergence of digitized voice, image and full-motion interactive video with an international network that has the capacity to carry that cacophony of information—with gratifying levels of speed and accuracy—will profoundly affect the way organizations do business. CIOs must begin to imagine, and encour-

applications. Whether you call it distributed processing or client/server computing, the fact is that the abundance of new business applications has put pressure on telecommunications providers to furnish larger-capacity and speedier transmission services.

"Companies are moving their applications into a client/server, local area network-based environment," says Gus Bender, second vice president of telecommunications and information systems at The Travelers Insurance Companies in Hartford, Conn. That creates more traffic because the applications are larger, and

Standards To Watch

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One of the most important things a CIO can do now is to be aware of evolving telecommunications standards, including the following.

ATM (asynchronous transfer mode): A standard for packaging data, voice, image and video for transmission over local and wide area networks at speeds of 100 Mbps or faster.

Frame Relay: A standard for packaging data and image for transmission over wide area networks at speeds from 56 Kbps to 1.024 Mbps. It is not considered suitable for real-time voice and video transmission. Many observers see it as an appropriate migration path to ATM.

ISDN (integrated services digital network): A set of network architecture standards for simultaneous digital transmission of voice, data and video over the public telephone network. ISDN does not depend on fiber optics. The standard has been around for more than a decade and has yet to achieve wide popularity.

SMDS (switched multimegabit data service): Another possible migration path to future ATM services, SMDS is a high-speed service for interconnecting local area networks at speeds up to 45 Mbps.

SONET (synchronous optical network): A set of international standards for signal transmission over fiber-optic networks. It specifies transmission speeds from 51.84 Mbps to more than 4 Gbps. For comparison, most modems run at speeds up to 9,600 bps.

"Corporate communications managers have far more choices today than they had even two years ago," says Royce H. Holland, president and COO of MFS Communications Company Inc., in Omaha, Neb. "In another two or three years they'll have even more."

The challenge to IS chiefs is more than just keeping up with the changing shape of the telecommunications

age every employee to imagine, what this could mean to their own companies.

In one sense, changing the way corporations work is at the heart of the emerging telecommunications revolution. The business-process reengineering projects that have absorbed so many IS organizations and their business clients have led to a massive reorganization of business

"This is not a good time to get locked into a long-term contract, unless you can negotiate a very aggressive rate."

—Michael D. Kennedy

a great deal of routing and network-management services are also required to enable the LANs to communicate with the wide area network that carries information around the nation. "All of that means that there is a requirement for plenty of bandwidth," Bender adds.

In addition, says Lance Lindstrom, managing analyst for data networking at DATAPRO Information Services Group in Delran, N.J., "organizing people into workgroups, and having those groups communicate across states, countries and oceans, gives rise to really bandwidth-hungry applications." For example, multimedia communications and desktop videoconferencing, which enable people to work with one another across borders and boundaries, are notorious bandwidth hogs.

While reengineering and globalization of business drive the demand for new and better telecommunications technology, a massive reorgani-

zation of the industry itself, fueled by promises of governmental deregulation, is beginning to stimulate the development of new services and products to meet that demand. In fact, telecommunications vendors may not wait for the government, suggests Robert Rosenberg, president of Insight Research Corp., a telecommunications market-research company in Livingston, N.J. "The rules of the game are continuously changing," he says. "Most observers would agree that the rate of change has outrun the regulators' abilities to manage that change."

In a January speech on telecommunications, Vice President Al Gore said the Clinton administration supported legislation that would "take the courts out of the phone business and provide a pathway by which the local phone companies can enter other lines of business and let cable and other companies into the telephone business." The Clinton administration's announcement came as no surprise to the executives who flew to California to hear Gore's speech. As a senator, Gore was outspoken on the need for deregulation of the telecommunications industry. His election as vice president had promised change, and the industry began making plans before the inauguration.

LATE IN 1993, BELL ATLANTIC Corp., one of the seven regional Bell operating companies (RBOCs), announced plans to merge with Tele-Communications Inc. (TCI), the leading distributor of cable-television services, based in Englewood, Colo. It was expected that Philadelphia-based Bell Atlantic would be able to provide telephone service over TCI's enormous network of fiber-optic lines beyond the phone company's court-defined service area, as well as video

Mergers and Alliances

Mergers and strategic alliances are being announced almost every day. Here are some, with their probable implications for the business community.

COMPANY	TYPE OF ALLIANCE	WITH	IMPLICATIONS
AT&T	Purchase	McCaw Cellular	National wireless network
AT&T	Strategic	TCI	Video-on-demand in real-time
Bell Atlantic	Merger (collapsed)	TCI	National telephone network, entertainment and interactive video via telephone lines
BellSouth	Joint venture	Prime Management (cable)	Local telephone network, video
British Telecom	20% investment	MCI	International telephone network
GTE	Strategic	All RBOCs except SW Bell	National wireless network
Southwestern Bell	Joint venture	Hauser Cable/Cox Communications	Local telephone network, video
TCI	Joint venture	McCaw Cellular	Wireless radio services
TCI	Joint venture	US WEST	Cable-telephone services in England
US WEST	Joint venture	Time Warner	Local telephone, network, video

teleconferencing, a variety of information services, satellite communications and who knows what else. But the deal foundered late in February, with the principals claiming that a Federal Communications Commission order rolling back cable television rates had made the merger untenable.

According to a Feb. 24 *Wall Street Journal* story, however, observers familiar with both companies noted that a more likely cause was a "protracted bout of dickering and bickering" over the final terms. In another *Journal* story about the merger's collapse, industry observers fretted that the development would chill the overheated telecommunications merger climate. But other sources contacted for the story were confident the effect would be felt temporarily, if at all, since the larger

forces propelling convergence are unaltered by the particular difficulties TCI and Bell Atlantic encountered.

Meanwhile, AT&T purchased McCaw Cellular Communications Inc., putting AT&T in position to supplement its long-distance service with local cellular capabilities and, thus, to compete with the RBOCs it used to own. The marriage of AT&T and McCaw, says AT&T's Russo, means "anytime, anywhere communication, not just for voice but for fax, image and data"—crucial for anyone who travels the world on business.

Closely related to government deregulation is what has come to be known as the National Information Infrastructure (NII). The often-used analogy to the construction of the interstate highway system in the 1950s is appealing but inaccurate.

Acronym Soup

The language of the telecommunications community is full of acronyms.

To take part in the dialogue you need to know at least these:

AAC: Alternative access carrier. Supplier of private network services, such as Teleport and Metropolitan Fiber Systems.

CATV: Cable television.

CPE: Customer premises equipment. The phones and switches in your office.

IXC: Interexchange carrier. Specifically, AT&T, MCI and Sprint.

LATA: Local access transport area. The geographical area served by an RBOC.

LEC: Local exchange carrier. The RBOCs and their local competitors.

PCS: Personal communications services, such as cellular phones, portable fax machines and PDAs.

PDA: Personal digital assistant. Apple's Newton, for example.

RBOC: Regional Bell operating company. One of the seven segments of AT&T's Bell Telephone System spun off into independent telephone companies by court order Jan. 1, 1984.

listing of the most prominent standards, see Page 60). Large corporations that wish to have a say in what standards ultimately emerge might join one or more of the deliberating bodies. Lindstrom says the real action currently is in the ATM Forum, where criteria for asynchronous transfer mode (ATM) switching of digital information are being established (see box, Page 64).

THERE ARE NEW TECHNOLOGIES to keep track of, too. Beyond the merger of cable television, satellite transmission and telephone, there are cellular and wireless technologies, low earth orbit (LEO) satellites for guidance of delivery and field-service fleets, and a new kind of wireless transmission called spread-spectrum technology.

Spread-spectrum products currently are aimed at users of Apple Computer Inc.'s Newton personal digital assistant, according to Michael D. Kennedy, manager of the corporate networking practice of Arthur D. Little in Cambridge, Mass. Priced at about \$20 per month, the technology uses a modem about the size of a cigarette pack that plugs into the back of the Newton and communicates over available slices of the radio spectrum. It is being tested in the San Francisco Bay area by Metricom Inc. of Los Gatos, Calif., says Kennedy, who calls it "an exciting new way to get data communications." Other companies are trying similar techniques, he adds.

That is but one of the new products and services CIOs can look forward to—and can imagine how to employ while they're waiting. Virtually every company involved in telecommunications has a story to tell about what it can offer now and what is to come.

Sprint's Alotto talks of a "terrain-imaging application" that uses "incredibly large files of satellite image data, manipulated and rendered in real-time." Called TerraVision, the application involves a user at a keyboard viewing satellite data from anywhere in the world, with the ability to move readily from one place to

For one thing, the government will not build the NII, as it did the highway system. Telephone and cable companies are laying fiber-optic cable almost everywhere but rarely redundantly, says Decker. "You're not going to have MCI laying fiber with another company right behind it. That's not a reasonable business strategy. These networks will connect to each other. Geographically, they will sort themselves out."

Don't expect the government to fund this interconnection, either, says Tony Alotto, director of technology planning and architecture integration for the long-distance division of Sprint Corp. in Overland Park, Kan. Instead, the government will provide the vision and transfer to the private sector the results of research done by the military and telecommunications companies acting as contractors to the government.

In fact, Alotto says, fiber-optic cable is so nearly ubiquitous that "you can argue that the information highway is in place today. What's missing

are the access ramps—the ability to get on and off the information highway." For the NII to succeed, says Insight Research's Rosenberg, someone "needs to put all the [telecommunications] executives into a room and make them stay long enough for them to agree on a way that will allow all the separate networks to work together. That means a set of protocols and a way to do the billing. That's what NII is really all about."

When universally accepted protocols appear, says Robert X. Cringely, a pseudonymous columnist for *CIO*'s sister publication *InfoWorld*, "in the long term we are going to see a dramatic cut in cost. You're going to be able to do more things for the same or less money, probably with a greater variety of suppliers."

Since protocol standards are crucial to the development of the information infrastructure, says DATA-PRO's Lindstrom, IS chiefs would do well to keep on top of the standards debates currently underway (for a

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the other. Currently, the images are stored on magnetic media, "but within the year, that data will be pulled in real-time off a satellite," Alotto says.

Software vendors too are positioning themselves to take advantage of this suddenly unifying marketplace. Microsoft Corp. and Oracle Corp. are both working on unimaginably enormous multimedia database-management systems capable of storing all the books, encyclopedias, motion pictures and music in the world—and then some—along with the engines to ship them to anyone, anywhere, anytime.

Some telecommunications vendors, such as MCI Telecommunications Corp., Metropolitan Fiber Systems and WilTel, will compete on geographic coverage, among other things. Others will stress services. Teleport Communications Group Inc., of Staten Island, N.Y., will offer corporate customers a fully customized billing service—billing by department, individual, geographic region, line of business or whatever else may be of interest, says Pat Socci, vice president of MIS at the long-distance telephone carrier. Teleport will also act as consultant and systems integrator, yet only charge for its telecommunications service. Some companies will spe-

cialize in a single area of telecommunications. WilTel's aim is to become "the premier data-communications company," Wilson says.

ALTHOUGH THEY ARE FACED with an abundance of choices, CIOs have a year or two in which to reflect and decide. "[Change] will happen incrementally," says Decker. "There's not going to be a big bang. It's too complicated." What is required now, according to Martyn Roetter, vice president of communications and information technology at Decision Resources

porate pressure to try to lock you in."

Some corporations may find they have the ability to enter the telecommunications marketplace themselves, Kennedy says, either by leasing their own fiber networks or by teaming with a telecom vendor to offer technical-support services. CIOs may also want to think about the possibility of selling products to their customers over interactive video.

Observers see little need to worry about which telecommunications vendors will thrive and which will fail. "There's a danger that some of

"You're not going to have MCI laying fiber with another company right behind it. That's not a reasonable business strategy. These networks will connect to each other. Geographically, they will sort themselves out."

—Sadie Decker

Inc., a consulting-information publishing company in Waltham, Mass., is "to be paying attention to what kinds of services are available, at what price and what coverage, how reliable are the various suppliers and who's supporting what kinds of standards."

In fact, delaying vendor decisions may be a particularly good idea. Kennedy recommends avoiding long-term contracts with the established telephone companies "because there may be a better deal around the corner. This is not a good time to get locked into a long-term contract, unless you can negotiate a very aggressive rate," such as one being negotiated by one of his clients with the local RBOC for a 60 percent discount. The local telephone companies, Kennedy says, "will come to your office...and try to sign you to a long-term contract... because they know what's going on in the marketplace. They'll use a lot of pressure. Their president will come to your president; they probably sit on boards together, and [the telephone company will] use that kind of cor-

the companies will go out of business," says Kennedy, "but there's little danger that the physical plant itself will go away, because there are plenty of companies, both in the [telecommunications] industry and out of it, that want a piece of the action." One example of this is Lightnet, which "was a disaster for the two companies that started it but ended up becoming a part of WilTel, which is a very successful company," Kennedy adds.

The coming "bandwidth explosion" and increased competition, says Cringely, will bring down communications costs. But at the same time, in order to survive, vendors will have to find new ways to get money from their customers. The result will be even more products and services. "It's a really exciting time for CIOs," says Wilson. "They'll be going to a smorgasbord that's been laid out like never before." 

Mickey Williamson is a technical journalist based in Warwick, Mass., who specializes in emerging technologies. She heads the Qwerty Group.

Joining the ATM Forum

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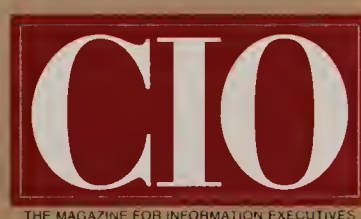
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THE VIRTUAL CAMPAIGN

The Internet played a significant role in Landon Curt Noll's election to Sunnyvale City Council. While no one claims that the "net" will ever replace more traditional political tools, Noll's example shows that the online world can add a whole new dimension to the campaign process.

BY LEIGH BUCHANAN

Since George Bush floundered over the price of a quart of milk, being out of touch has been one of the gravest sins a politician can commit. But it's not a charge anyone could level against Landon Curt Noll, a recently elected member of the Sunnyvale, Calif., City Council.

At a time when a significant proportion of White House mail comes in over electronic networks and Al Gore participates in press conferences on CompuServe, Noll represents the next obvious development in the trend toward putting politicians online. Last November, the 33-year-old computer scientist conducted part of his campaign for elected office on the Internet; he continues to use the "net" as a means of reaching out to and keeping up with his constituents. In fact, one of Noll's first acts as a councilman was to push through a proposal to put Sunnyvale City Hall on the Internet. Critical to that effort—no surprise—was

Noll's ability to stump for the issue electronically.

"The Internet has always carried debates about candidacies, but until recently the actual politicians have not been accessible," says Noll, who works for Network Computing Devices, a high-tech firm in Mountain View, Calif. "But as the Internet grows and becomes more a part of everyday life, we're going to see more and more activities of the American political system coming online."

Noll has been a denizen of computer networks since high school. In 1974, his father, who divided his time between tilling the soil and working as a systems analyst for Pacific Telephone, brought a computer home to the family's farm near Hayward, Calif. Noll was soon roaming the ARPANET, the computer network of the Department of Defense's Advanced Research Projects Agency, and the Internet's precursor.

Because he is a well-established

LANDON CURT NOLL:
The Internet has become emblematic of his governing style—an interactive version of FDR's fireside chats.



presence on the Internet, which he uses to communicate with other computer scientists, Noll went into his campaign with some degree of name recognition among Sunnyvale's large wired population. "When the campaign signs started going up, people connected my name with my E-mail box," says Noll, whose electronic address is noll@ncd.com. "The first letters would say, 'Are you that person who's running for city council?' Then I'd get questions about specific positions or general questions about why I was running for office, what I hoped to accomplish."

Some of his correspondents were so impressed with his answers that they offered to help out; Noll deployed many of these new supporters as foot soldiers who walked the precincts, met with voters, passed out literature and pasted up signs. All in all, Noll estimates that a third of his volunteer campaign organization was recruited directly from the Internet.

Noll also used the Internet to help formulate consistent position statements and get his message out to a larger audience. At the beginning of the campaign process he received questionnaires from a variety of special-interest groups; since many asked for the same information (overall vision, positions on hot topics like development and the budget), Noll was able to cut and paste replies online. "The important thing to remember is you can't send out electronic form letters," says Noll. "When a questionnaire came in, we may have had a base text, but we always massaged it to better fit that particular question."

From these responses, Noll also crafted general campaign messages that he broadcast to Internet users in the Bay area. "That was the smallest subuniverse I could easily restrict distribution to," says Noll, who makes a "wild guess" that he may have reached 50,000 people. Every broadcast garnered around 40 responses in the week after it was sent. "I would have gotten thousands if I'd sent them out for world-

wide distribution," says Noll. "But they would have been from people in New Zealand saying, 'Why are you sending me messages about the Moffett Air Force Base?'"

Based on these exchanges, Noll began developing an online mailing list of people who had used the Internet to express interest in his campaign. When debate time rolled around, he invited these supporters to join the audience, ensuring the presence of some "friendly members."

Still, the city councilman insists that the Internet gave him an advantage only in appealing to a small, select constituency. The vast majority who voted for him—probably 90 percent—did so after meeting him in person or hearing his message through some other medium. (Noll won nearly 50 percent of the vote in a three-way race for an at-large seat.) Prior to the election, the candidate personally walked all of Sunnyvale's precincts; more than a quarter of the city's 120,000 residents met Noll face to face. "The fundamental part of my campaign was still that one-on-one eye contact with the voter," he says. "Now that I'm their council member, it's incumbent on me to continue to reach out to people. Walking around and personal contact is a very important part of how I conduct myself."

For related reasons, Noll did not go out of his way to publicize his presence on the net. "I don't think my opponents even knew about it," he says. "I didn't want to use it as a publicity item. I was not interested in having the press [calling me] 'the candidate on the Internet,' because I didn't want to give the perception that I was only going to be paying attention to Internet-related issues."

Having won office, however, Noll is less reserved about his networking proclivities. If the Internet was a secret weapon during the campaign, it has now become emblematic of his governing style—an interactive version of FDR's fireside chats. Consider his actions last November, when

the council held its annual public hearing to set the city's legislative calendar for the coming year. As an experiment, Noll sent out a broadcast explaining the importance of the calendar and inviting people to attend the meeting and offer their input. Then, on the morning before the hearing, he sent out another broadcast asking those who could not attend but were interested in

Connections in High Places

.....

Online communications are giving the government a new way to stay in touch with its citizens

The electronic town hall may have been a stump theme for Ross Perot, but the Clinton administration is not averse to borrowing a good idea. As a result, anyone with an Internet connection can now deliver plaudits or raspberries electronically to 1600 Pennsylvania Ave.

In addition to about 23,000 pieces of paper mail per day, the White House receives another 5,000 electronic messages each week, according to Stephen Horn, White House director of electronic mail. "That's up from zero in the previous administration," says Horn. "This is the first attempt by any government in the world to connect to its citizens electronically."

Last June, the White House began publicizing Internet addresses for both President Clinton and Vice President Al Gore. The messages are read by volunteers who process them just as they would paper mail. Because of security concerns, Internet messages come in on a standalone server that is not connected to other government computers; unfortunately, that also

seeing a certain issue addressed to send him an E-mail on the subject.

"What happened was quite surprising," says Noll. "In a period of 12 hours I received more responses and entered into the record more electronic testimony—40 pages' worth—than we got from the actual hearing. The number of people who came to the council meeting through the Internet exceeded the number who

came in person." Now Noll regularly mentions his E-mail address at council meetings and invites attendees to send him questions and comments.

One of Noll's earliest triumphs on the council was the unanimous passage in January of a measure to establish for Sunnyvale a "single Internet domain to receive and send E-mail." The importance of such a

move became increasingly apparent to Noll as he discussed his city's telecommunications future with his constituents online and offline. "Some people said, 'I don't have cable TV, so I can't watch the council meetings, and it's inconvenient for me to go down in person,'" he explains. For these people, the Internet was the preferred method for plugging into the public dialogue.

means no one who is not connected to that server can respond to those E-mail messages electronically.

Horn says the chief advantages of electronic access are that it is cost-effective and improves the government's ability to keep its finger on the proverbial public pulse. "When someone sees something on the news [that provokes a response], they can just turn around and type out a message to the president," says Horn. "We receive it within hours, so we get more of a real-time response."

While the volume of mail has been fairly constant, Horn says there are periodic surges when big issues hit the table. "The day after the health-care speech, we doubled our input," he says. "And the day after [Surgeon General Joycelyn] Elders' comment about drug legalization, it spiked again."

On the other side of the mall, Congress is also experimenting with providing E-mail access to constituents. Last summer the House Administration Committee began a pilot program in a dozen representatives' offices; officials are now recommending that the service be rolled out to all members.

Each of the participating representatives—including Newt Gingrich of Georgia, Pete Stark of California and Administration Committee Chairman Charlie Rose of North Carolina—publicized their E-mail addresses to constituents and assigned staff members to respond to electronic inquiries. Because many constituent concerns—a lost Social Security check,

say—can take some time to research, the staff tries to send out electronic acknowledgements immediately upon receipt of a message. "Some members have been concerned about getting involved in the program because of the extra workload it creates for their staff," says Jack Belcher, manager of information resources for the

Belcher says. "But we have been advised that you cannot do something explicitly that is implicitly forbidden by the law."

Despite such concerns, Belcher says that the experience has been generally positive for all the members involved. "The quality of mail we've received has been quite good:



THE WHITE HOUSE currently receives 5,000 electronic messages per week.

House of Representatives.

Another concern is that broadcasts to constituents might violate the franking limitations that apply to regular mail (for reasons of fairness and cost, members can send out only so many mass mailings while they're in office). "Those limits do not explicitly apply to E-mail today,"

There have been very few crazies writing in, very few people who abuse the system with a lot of junk mail," he says. "We've found a group of concerned citizens—not just from the United States but internationally—who wanted to communicate with the members."

—L. Buchanan

Naturally, Noll invited his Internet audience to offer their views on the subject, and more than 80 responded. Armed with printouts of their testimony and suggestions, he quickly convinced his fellow council persons that an Internet connection should be the first step in implementing an ambitious telecommunications policy for Sunnyvale. After the measure passed, he was quick to

supporters reminded him that simply going online isn't enough. "Just having a mailbox doesn't mean that you provide a service," the councilman explains. Instead, Noll warns, government officials receiving mail either electronically or through more traditional means must remember "the three R's: read it, route it and respond to it."

Nonetheless, Noll believes that

have dealt with this problem. They are looking especially hard at Santa Monica, Calif., which has set up kiosks fitted with public-access terminals at various points in the city. (See "The New, Improved Government Input Device," *CIO*, November 1989, Page 26.)

Noll thinks this would work for Sunnyvale too, and he mentions the public library as one obvious site.

"I think the best way to look at government access is to say no one communication is going to fit everything," says Noll. "Not everyone reads the newspaper; not everyone attends city council meetings; not everyone likes to or can afford to use the Internet. That's why government—if we really want to get citizens involved—has to find and use all the means of communication that people feel comfortable with."

No one argues that the Internet is likely to replace baby kissing or flag waving on the campaign trail. Still, Noll's deft manipulation of this new political tool has generated interest among the people whose business it is to get other people elected. The Democratic National Committee (DNC) has questioned the new councilman closely about his methods; shortly after the Internet measure passed, the DNC said it planned to temporarily devote its CompuServe forum to documents chronicling the Sunnyvale phenomenon.

"What Landon Noll has done in Sunnyvale is a kind of grass-roots example of how the information highway is being built," says Dick Bell, communications technologies director for the DNC. "It's coming both from the top down—in general policy directions from Washington—and from the bottom up—as you see here in a race for city council."

Such innovative uses of the Internet "offer the possibility of giving people much better, quicker and cheaper access to information about what their government is doing and allowing them to respond to that information more directly than they ever have before," Bell says. "It's a wonderful technology for expanding democracy." **CIO**

"The best way to look at government access is to say no one communication is going to fit everything. That's why government—if we really want to get citizens involved—has to find and use all the means of communication that people feel comfortable with."

—Landon Curt Noll

offer his thanks electronically. "City Hall took notice when I came to meeting after meeting with your comments," he wrote. "The council took notice when they received dozens of your messages. Your input *was* noticed; your input *did* make a difference."

Noll expects that under the new system all messages would be sent initially to a printer and then placed in the interoffice mail system or delivered to the appropriate council member. Although the measure creates only a single E-mail repository, Noll worded it so as to "give staff the flexibility to establish multiple addresses, subdomains and other internal structures as needed." He hopes that an upgrade will be possible after Sunnyvale's new information management services (IMS) director gets a chance to review the city's computer systems and networks.

There is a certain elegant reflexivity to Noll's using the Internet to drum up support for Internet use. But even while he proselytized its benefits, his

the decision to put Sunnyvale on the Internet has "historic significance. Sunnyvale has taken a proactive, leading step by entering the Internet community," he says. "Twenty years from now, people will be saying, 'Do you mean there was a time when I couldn't send an E-mail to City Hall?'"

Sunnyvale may be going online, but that doesn't mean the Internet will become the predominant public channel to government anytime in the near future, Noll insists. Down that road lie the dangers of political disenfranchisement for a large segment of the population, possibly even the creation of an information underclass. Nestled as it is in the heart of Silicon Valley, Sunnyvale has more than its share of technology blue bloods; but even here there are plenty of computerless households.

So while the city ponders the shape of its overall telecommunications strategy, council members are studying how other communities



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The EDI Superhighway

The standards issues are largely laid to rest, and the business applications show more pizzazz and sophistication. But the key to EDI's ultimate fruition may lie in the astonishing growth of the Internet.

BY JOHN EDWARDS

Electronic data interchange (EDI) is the "emerging technology" that's taken the better part of two decades to crawl into the information mainstream. But ongoing changes in hardware, software and management vision—along with a healthy dose of "information superhighway" hype—are finally helping to make EDI the universal business tool its advocates have long promised.

EDI, in its purest form, allows organizations to exchange business documents—invoices, purchase orders, shipping notices and the like—via an electronic network. The idea behind the technology is to help users speed up everyday transactions with business partners and eliminate the mounds of paperwork that can smother an organization.

In recent years, however, EDI has grown from a simple order-processing technology into a comprehensive management tool. Today, in addition to handling the usual assortment of bills and purchase orders, EDI is used for applications ranging from

inventory replenishment to transferring medical-benefits claims among hospitals, insurers and employers. Experts say that new technologies and reengineered business practices will help expand EDI's usefulness in the years ahead.

Organizations should be looking at EDI in a new light, says Michael Maynard, president of Integrated Management Resources Inc., an IT management and implementation consulting firm in Stow, Mass. "It's not just sending transactional data across the wire. The field is now beginning to encompass text, graphics, voice, data and video. There's more multimedia coming onto the scene."

Maynard says the proper view of EDI is as "information commerce," a technology that can be used to exchange publications, presentations and databases, as well as traditional transaction documents. "In the future, once the network capacity is there, a document might contain not only text but also a voice or video annotation, graphical characters or CAD drawings," he says.

Jim Crouse, EDI marketing program manager at Advantis, the Schaumburg, Ill., networking technology company owned by IBM Corp. and Sears, Roebuck & Co., sees asynchronous transfer mode (ATM) technology having a big impact on EDI in the years ahead. ATM is a set of standards for sending large amounts of voice, data and video information simultaneously over a network at transmission speeds of up to 155 Mbps. Crouse points out that ATM technology will allow organizations to swap entire multimedia catalogs via EDI, a development that should have a significant impact on a wide array of businesses, particularly retailers. "Company managers won't only be able to look at a line in a catalog, they'll be able to view a full-motion



ILLUSTRATION BY HAL MAYFORTH

IS STRUGGLING WITH EDI YOUR IDEA OF A GOOD TIME?

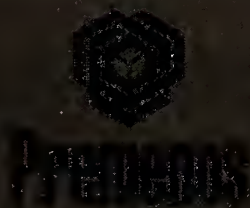
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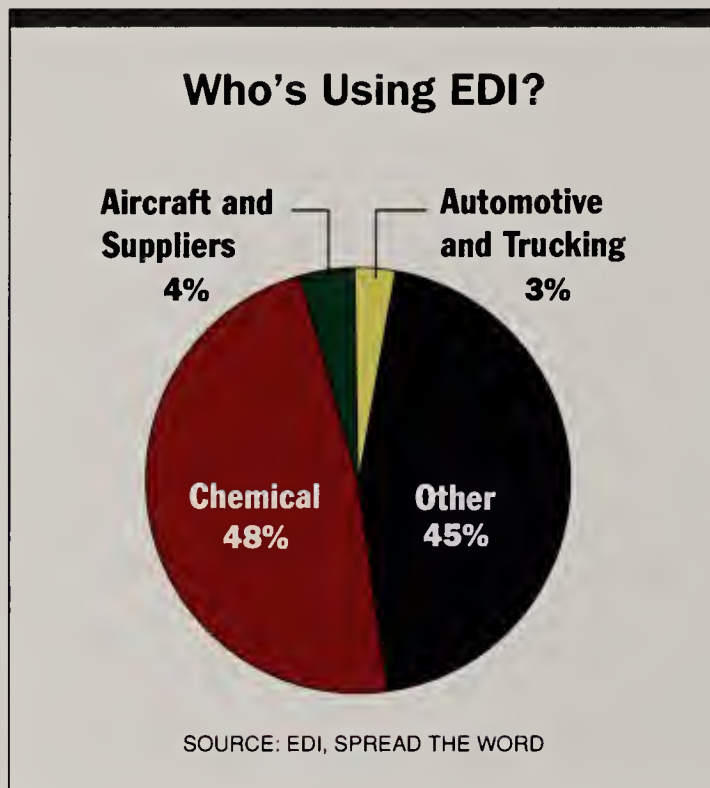
video of the item," he says.

Crouse also sees ongoing changes in the X.400 field having an impact on EDI down the road. (X.400 is an international standard for networking between computer systems and is commonly used for interconnecting private electronic-mail services.) "X.400 is being expanded into X.435, which would include EDI transactions," says Crouse, noting that this development will help speed the eventual integration of electronic mail and EDI transfers.

According to Crouse, X.435 would offer users better security and tracking than is available with existing EDI network services. Large companies that want to cut the cost of maintaining separate networks for electronic business documents and electronic mail may find the solution in a single standards-based X.435 messaging network, he says. "Electronic mail is people-to-people communication. That goes hand in glove with EDI, which is application to application."

Moving EDI to a network structure that's accessible and affordable to a wide range of large and small businesses is the idea behind Fast, an automated electronic-parts brokerage operated by the University of Southern California's Information Sciences Institute (ISI). With Fast, a buyer looking for a specific product uses a desktop computer to contact the Fast system in Marina del Rey, Calif., via the Internet (its address is fast@isi.edu). The user simply enters a request for a quote or places an order on a standard electronic form provided by Fast; that form is then sent to the system via electronic mail.

Once Fast knows what the user is looking for, it searches along numerous possible pathways in its own database. A few of the larger suppliers use "in-plant terminals"—special programs that display online a database of their offerings. Smaller suppliers reply via electronic mail using an electronic form. Some suppliers must be queried over value-added networks (VANs) in X.12, the fundamental EDI document standard, or even via automated fax. The



Fast system knows the proper format for each supplier on its list and automatically translates the seeker's request into the required style.

Since its inception in 1987, Fast has moved more than \$7 million worth of goods from more than 2,500 suppliers (and has healthy expectations of bigger things on the booming Internet). ISI charges buyers an 8 percent commission. It also receives funding from the Department of Defense's Advanced Research Projects Agency (ARPA) in Washington. Fast's users include the corporate research and development division of General Electric and Wright Labs at Wright-Patterson Air Force Base.

Anna-Lena Neches, operations manager of the Fast project at ISI, has no qualms about using the Internet to move business data. "The Internet is nothing but another type of VAN," she states, pointing out that it can function as a low-cost substitute for the VANs that EDI users have traditionally accessed for making transactions with trading partners. With the Internet-as-a-VAN concept in mind, Neches says, ISI is looking at expanding its use of X.12 in the Fast system over the Internet.

Fast has brought EDI to companies that have never used the technology, she adds. "It's far more effort for FAST's transaction partners to use X.12 [on their own] because suddenly they have to invest in translation software and get involved in X.12

negotiations." But, in playing an intermediary role, ISI relieves customers of those burdens. "We build the bridge so that the particular communications format is transparent to our users."

According to Neches, security isn't a big concern at Fast or among its users, primarily because the information being handled isn't particularly sensitive. But she adds that as Fast and the Internet take on more of the duties of a traditional VAN, the issue of security will have to be addressed. "Security will be driven by us, not by our transaction partners, and we're already looking into the various options," she says.

Advantis's Crouse is wary of using the Internet for business transactions that require any degree of confidentiality. "The Internet isn't exactly as secure as you would really like it to be for passing your important company documents," he says. "I don't think anyone would think about putting an electronic payment across the Internet." Crouse even advises companies to think twice about transmitting less-critical data across the Internet because users' options are limited in the event a document is sent to the wrong party or otherwise lost. "Would you want to rely on the Internet for your business? Not the way it is today," he says.

Nonetheless, Ohio's Kent State University is testing the suitability of EDI and the Internet for the exchange of college transcripts. In a pilot venture later this year, the school will participate in SPEEDE (Standardization of Postsecondary Education Electronic Data Exchange), a project that will link KSU to several other Ohio colleges. With SPEEDE, Kent State will be able to receive a transfer student's transcript electronically, evaluate it for transfer credits and then determine how the listed courses fit into the requirements for the student's intended major. The process requires only a few minutes. Plans call for bringing the state's high schools into the system.

While college transcripts aren't vital business data, they're also not the



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sort of material that one would want distributed carelessly. But Roberta Pifel, KSU's registrar, feels that the Internet is at least as secure as the U.S. mail, the traditional medium used for transferring transcripts. She notes that using a return address on the Internet helps manage the problem of lost and misdirected messages because the sender is automatically notified whenever a message is delivered. "If we receive a receipt of a transcript and we didn't send it, we know we've got a problem," she says.

Pifel adds that in the project's early planning stages, SPEEDE's designers proposed using the password protection offered by the Internet's File Transfer Protocol (FTP) but ultimately decided against it. "We thought that FTP might be a little more secure, but most of the participating institutions felt comfortable with simple [electronic] mail."

The fact that the Internet is being used at all for everyday business transactions is proof that business users are looking for a no-hassle way of exchanging business documents, says Advantis's Crouse. He feels that EDI is at the heart of the National Information Infrastructure, the information highway being touted by the Clinton administration.

Benn Konsynski, director of the Center for Electronic Commerce at the Emory Business School in Atlanta, feels that the changes sweeping EDI are badly needed. He believes that EDI, as currently implemented by most businesses, simply "speeds up the mess" and has little positive effect on the bottom line. "It institutionalizes transaction sets that are the historic patterns of doing business," he says. "They are not necessarily the ways organizations want to do business now."

Rather than regarding EDI simply as a way of automating old processes, Konsynski says organizations should view it as an opportunity to explore new business avenues. He notes that management visionaries are exploring EDI's potential to transform industry structures and patterns of influence, create new business opportunities and alter business relationships among buyers and

ATM technology will allow organizations to swap entire multimedia catalogs via EDI, a development that should have a significant impact on a wide array of businesses, particularly retailers.

sellers. "They are redesigning their organizations, creating new external linkages and forging new strategic alliances," he says.

Konsynski believes that, on the technical side, EDI is getting easier to plan and implement. "Today, EDI is much more of a business issue than a technology issue." Peripheral issues such as compatibility and standardization, which were crucial concerns several years ago, have now been largely ironed out, he says. "It's very hard to make standards mistakes today," says Konsynski. "The standards game isn't over, but the risk of standards adoption [leading to some possible backward incompatibility] is certainly not a major business risk."

Integrated Management's Maynard says EDI standards have gradually improved over the years. "In the past, EDI varied from company to company, so you had to develop different file formats, different protocols and so on, depending on whom you were sending the document to. That's no longer the case, at least not so far as external EDI is concerned."

But Tony Scott, vice president of engineering at Uniteq Application Systems, an EDI software publisher in Redwood City, Calif., notes that organizations must work on making their internal data-transfer standards mesh with external EDI. "Most companies, historically, have developed their data-transfer needs internally and have paid little or no attention to exchanging documents with others," he

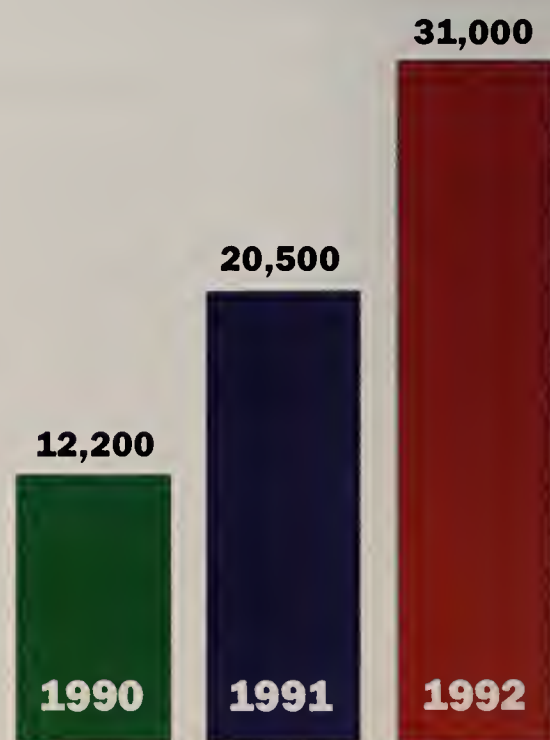
says. Scott adds that it is important for management to make IS staffers more aware of the need for external document interchanges through training and other educational resources.

Aside from standards and compatibility, IT management should address EDI's effects on everyday business procedures, says Konsynski, noting that implementing EDI in one area can generate ripples throughout an organization. "Creating a link to receive orders could intervene in the order-taking process. That process might be my sales opportunity. So, if I automate to create efficiency on one process I may be negatively, significantly impacting other processes."

He adds that despite the recent appearance of new technologies and applications, management must remain focused on the fact that EDI exists to improve efficiency and productivity. "It's easy to be influenced by the lure of new technologies," he says. "You can't justify EDI solely on the basis of transaction economics. The manager must look at what EDI can do for the full business portfolio." **CIO**

John Edwards is a freelance writer based in Mt. Laurel, N.J.

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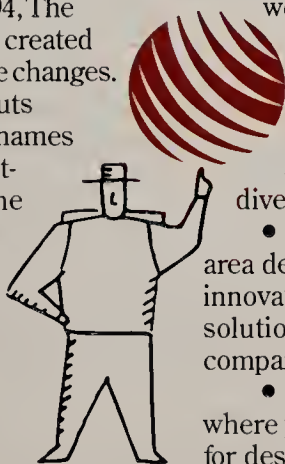
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FYI

Let's Go to the Hop

In today's data- and image-intensive network environments, storage can be a real problem. Plasmon Data Systems Inc. has released two desk-side optical jukeboxes capable of storing large amounts of data and accessing it quickly.

The RF-40J Model 680-2, a 44-platter system, offers 52GB of near-online storage with an average seek time of 68ms and an average disk-load time of 5.2 seconds. It accepts any combination of magneto-optical write-once or rewritable media.

The RF-53J Model 703-2 features two phase-change drives and stores up to 79GB of data and images on 53 5.25-inch optical disks. Its seek time is 45ms; its disk-load time



is 6.7 seconds. Data can be stored in any combination of write-once and phase-change erasable media, which carries a data life of 50 years.

According to the company, both products are easily integrated with either networked or standalone DOS, Unix, Macintosh and Windows environments, and include self-configuring intelligent controllers. The Model 680-2 costs \$27,000; the 703-2, \$26,500. For information, call 408 956-9400.

You're on the Air

The mandate to improve customer service has driven many retailers to seek help from information technology. A new handheld pen computer that links to store systems by radio-frequency wireless networking technology could be a real boon.

By providing fast, accurate access to inventory and sales data from anywhere in the store, the PPT4100 from Symbol Technologies Inc. will help retailers deliver the goods and services customers want, when they want them.

The 1-pound DOS-based device has a 5.5- x 3-inch screen and a graphical interface. About the size of a videocassette, it has an integrated bar-code scanner, which makes obtaining accurate product data simple.

The PPT4100 communicates via a spread-spectrum PCMCIA radio card (it has two Type II PCMCIA slots) and comes with an eight-hour battery. The unit is designed to communicate directly with the host system from its recharging cradle as well.

The product features a library of objects, or modules, with which to perform common application functions: for instance, using the scanner, radio, display manager and virtual keyboard (this appears graphically on the device's screen and is operated with the stylus).

It runs the PenDOS operating environment from Communication Intelligence Corp. and incorporates Phoenix PICO system software from Phoenix Technologies. Its Common Application Framework lets users develop software for their applications using industry-standard C++ development tools, according to the company.

A radio-equipped version of the device costs \$3,895; the batch version costs \$2,995. Quantity discounts are available.

For further information, call 516 563-2400.



Windows on the World.com

Windows PC users who have yearned to access the Internet but were daunted by the complexities of its navigation have cause for celebration. With Computer Witchcraft Inc.'s WinNET Mail, Windows users can easily send and receive E-mail, read or post to any of over 6,000 discussion groups and transfer files, according to the company. The user's PC receives its own system name on the Internet.

Comprising a software package and a service, WinNET Mail allows users to access the Internet without typing arcane commands or navigating character-oriented menus. For ease of use, a toolbar highlights the most commonly used functions, such as print, copy, delete and message. When users hit the message button, for example, the system automatically formats the page.

Other features include folders for organizing mail and news, an address book, message search for finding old or new messages and an automated news-group subscription. All Usenet news groups are available, including 200 UPI news-wire groups featuring general, technical and business news; columnists Dave Barry and Mike Royko; columns by Miss Manners and UPI's People; and Dilbert cartoons.

The software is easy to install, and account registration is automatic. Computer Witchcraft uses all 14,400bps modems with V.42bis and MNP-5 compression to help keep communications costs low.

The software is distributed free of charge; the offline service costs \$8 an hour with a monthly minimum of \$9.95 (the average customer's bill totals out at about \$25, according to the company). For more information, call 502 589-7300.

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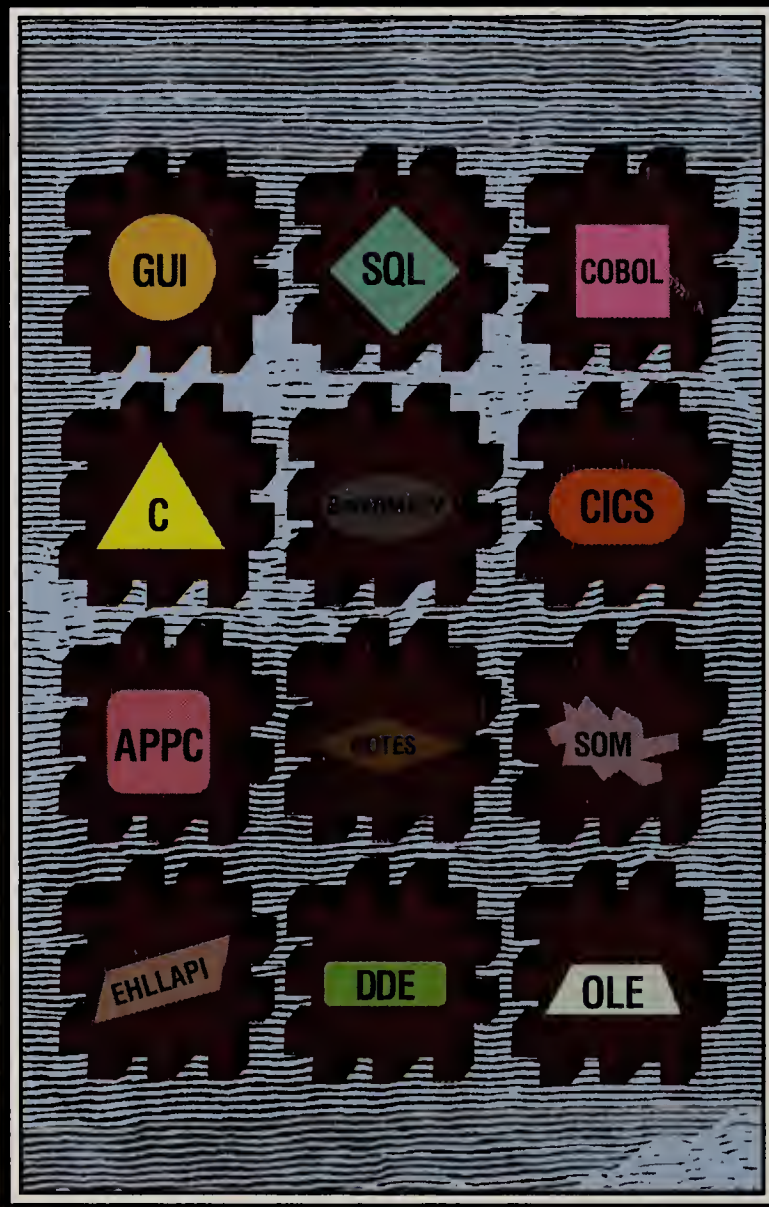
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